Southern Power & Industry

The Industrial and Power Journal of the Sou hwest

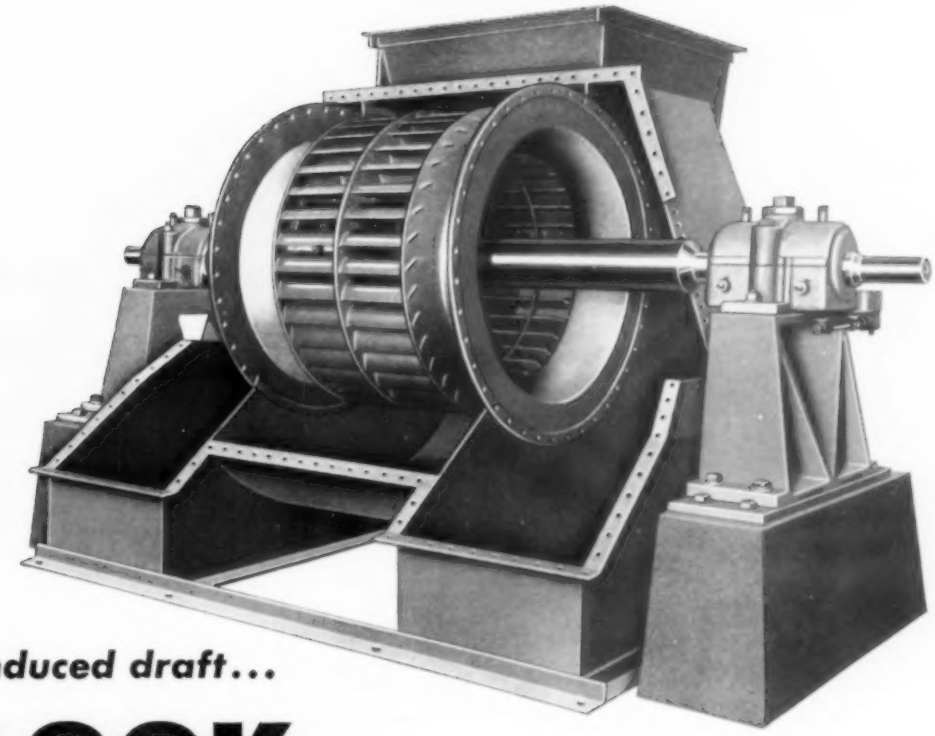
AUGUST, 1958

No Dials or Gauges

Computer Monitors
Louisiana Plant
See . . . Page 38

SOUTHERN POWER & INDUSTRY is published monthly by W. R. C. Smith Publishing Co., Executive and Editorial Offices: 806 Peachtree St., N.E., Atlanta 5, Ga. Entered as second-class matter at the Post Office, Charlotte, N. C. Subscription Rates: United States and Possessions, $1.50 per year or three years for $3.00; Foreign Countries, $10.00 per year.

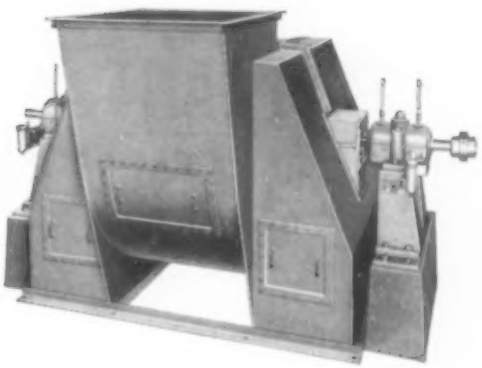
Volume 76 Number 8



For induced draft...

LOOK what Clarage's new Type DN Dynacurve Fan offers you

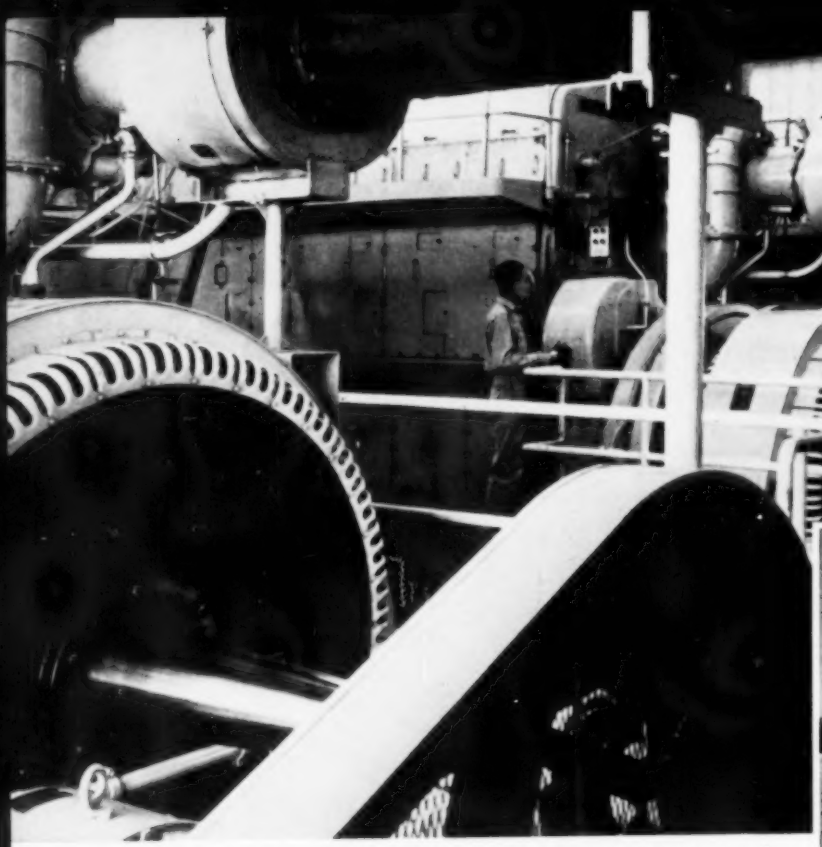
1. LOW cost.
2. LOW tip speed.
3. LOW moment of inertia (WR^2).
4. HIGH efficiency.
5. HIGH dynamic conversion.
6. HIGH standards of construction.



Write today for Catalog 905. Clarage Fan Co., Kalamazoo, Mich.

CLARAGE ... *dependable equipment for making air your servant*

SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal



EFFICIENCY AWARD for 1957 (Division A) goes to Federated Rural Electric Assn. for producing power at the low cost of only 6.54 mills per kwh. Manager Paul L. Ferguson reports that "Lubrication with Texaco Ursa Oil Heavy Duty, and frequent thorough engine checks, have kept average liner wear (all engines, all cylinders) down to 0.005" after 33,000 hours' operation."

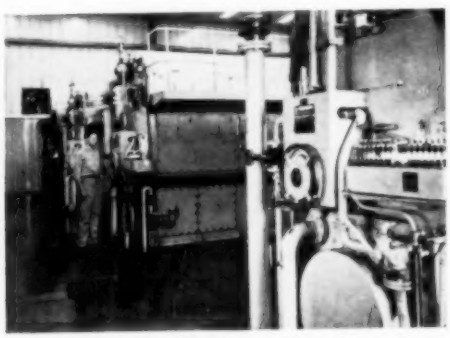
A GOOD NEIGHBOR as well as an efficient one, Federated's modern plant is handsomely landscaped, and the engines exhaust into Maxim silencers.

"MOST EFFICIENT" REA PLANT WINS TITLE WITH TEXACO

A combination of rigid maintenance standards and the use of Texaco Ursa Oil Heavy Duty has won two *Diesel Progress* awards for efficiency for Federated Rural Electric Association, Jackson, Minn. In 1954, and again in 1957, Federated was named "the most efficiently operated of all REA internal combustion plants." This is how Texaco has helped Federated stay on top:

Texaco Ursa Oil Heavy Duty keeps engines clean, for maximum efficiency. It prevents formation of sludge, keeps the rings free and compression high, so the engine uses less fuel, and runs longer between scheduled overhauls.

Minimizes wear, too. Texaco Ursa Oil Heavy Duty is a premium quality lubricant—one of a complete line of Texaco Ursa Oils especially refined and processed to lubricate diesel, gas and dual-fuel engines. For details on what Texaco Ursa Oils can do in your plant, call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



POWERFUL PERFORMERS stay powerful with Texaco Lubrication. Each 8-cylinder 4-cycle Nordberg Dua-fuel engine is rated at 1750 hp at 327 rpm.

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

BPA
NBP

Southern Power & Industry

The Industrial and Power Journal of the South and Southwest

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Facts and Trends

August 1, 1958

◆ NO DIALS OR GAUGES in Louisiana Power & Light Company's Sterlington Station at Monroe, La. The first transistorized general purpose digital computer, which gives an automatic record of operating conditions without the necessity of reading dials or recorders, went "on-line" at the new 210,000 kw station last month.

Operational Information System (by Daystrom) handles 350 points at a rate of 5 points per second, automatically measuring bearing and oil, boiler, steam, transformer and other temperatures. When any of these register higher or lower than a preset point, an alarm will sound, and reading is printed out on separate unit indicating its location in the plant.

While the use of computers in process systems is not new, previous installations have employed analog computers which do not offer the accuracy or flexibility of digital computers. Design and operational details of the Sterlington Station installation are featured in this issue.

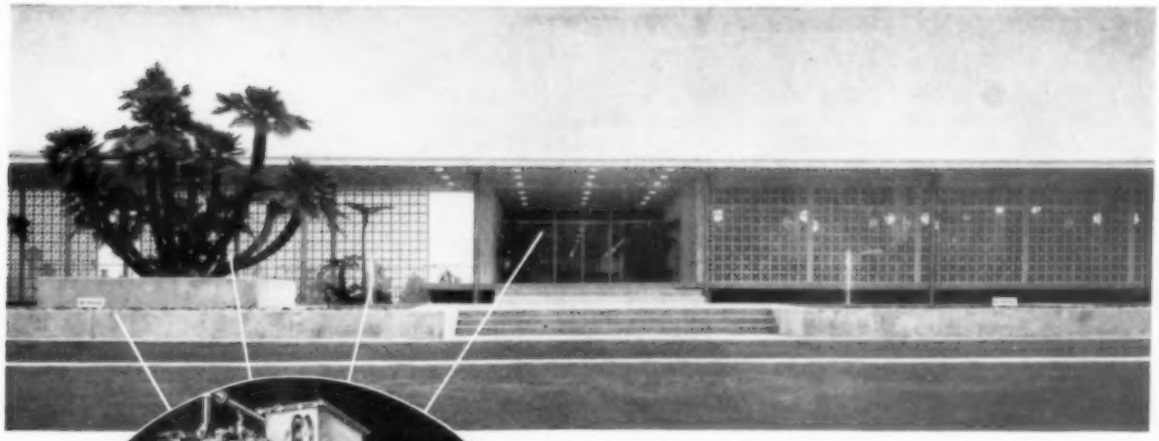
◆ LARGE A-C MOTOR DESIGN by Westinghouse permits enclosure to be manufactured independent of the wound stator. Enclosure is merely bolted to base of motor making wound stator fully accessible when required. In just 30 minutes, every part of the motor is removed and made available for complete inspection, cleaning and general servicing.

◆ CHAR AS PRIMARY FUEL — American Gas & Electric Company plans to operate its new Kammer Power Station near Captina, West Virginia with char as the primary fuel. Test burning of char has been conducted over the last two years by B&W's Alliance Research Center and boiler refinements have been made to insure efficient combustion of the low volatile substance.

Consolidation Coal Company is opening a new mine, will extract the chemicals in a new processing plant and move the resulting char on to the Kammer Station. Bituminous Coal Institute reports that upwards of two dollars' worth of chemicals may be extracted from a dollar's worth of bituminous coal.

◆ HOW WILL HE RATE IN '78? — Joe may be a vice president in 1978 or a real problem child. Joe is the fellow you hire today. You will pay him over $100,000 in those twenty years plus other benefits.

Suppose you decided to purchase a new piece of equipment for $100,000. You would make a thorough engineering study of the investment to make sure the new equipment would pay off in lower costs, better quality and improved service. The same careful engineering approach should be followed when you employ a new man.



Screened facade of Stuart Co. plant, Pasadena, California

Iron Fireman-Kewanee boiler-burner unit

Where the *steam* comes from...

for both heating and pharmaceutical processing

One of the notable commercial buildings of the year combines maximum utility with such striking beauty that it has won nation-wide acclaim. Designed by Edward D. Stone, this plant is used by the Stuart Co. for the production of pharmaceuticals.

Up-to-the-minute mechanical equipment includes two Iron Fireman-Kewanee boiler-burner units. Due to forced draft firing, there is no stack to mar the symmetry of the building. Dual-fuel burners efficiently fire gas or any grade of light or heavy oil, with quick changeover.

Complete Iron Fireman boiler-burner units can be easily sized, specified and ordered from a single catalog, with a single model number.

Conservative rating permits an easy, economical "cruising speed" at rated output, with 50% reserve capacity and consequent minimum noise level and low maintenance costs.

Mail coupon for detailed information and specifications.

Lounge and offices overlook spacious atrium

Architect: Edward D. Stone

Mechanical Engineers: Stockly & Bamford

Mechanical Contractors: Hickman Bros., Inc.

IRON FIREMAN®

AUTOMATIC FIRING EQUIPMENT FOR HEATING, PROCESSING, POWER

IRON FIREMAN MANUFACTURING CO.
3124 West 106th Street, Cleveland 11, Ohio
(In Canada, 80 Ward Street, Toronto, Ontario)

Please send catalog and specifications on following equipment:

- ☐ Complete boiler-burner units
- ☐ Forced draft firing unit only

Name.....
Firm.....
Address.....
City.....State.....

For more information, use Reply Card—Page 83

Facts and Trends (Continued)

HOW TO HIRE A MAN, featured in this issue, offers constructive comments. Use of recommended methods cuts down training costs, waste, turnover, and the terrific problems created when you hire unqualified people and keep them on the payroll over a a period of time. Intelligent hiring saves far more money and time than it costs.

◆ NEW AIR HAMMER by Thor Power Tool "inhales" dust and chips, providing one solution to dust problems in drilling concrete, brick, plaster, etc. Utility drill sucks in drilling dust through hollow drilling steel with the dust moving out ports in the back head and into special dust-extracting tanks.

◆ CURVE-CROWN PULLEY by Stephens-Adamson is a round-rimmed pulley with a single seam, 100% welded on both outside and inside. Company states that training is needed only when the belt is running off or has a tendency to run off one side of the pulley. Therefore only the outer ends need be crowned. Result is superior training effect and no belt stretch or wear.

◆ DRAGON-SKIN, a new flexible all-steel sandpaper by Red Devil Tools is claimed to outcut medium grade conventional sandpaper by five to one and outlast it more than ten to one without clogging. Dragon-Skin can easily and quickly rasp, sand and smooth hard and soft woods, plaster and soft plastics.

It is produced by punching .036-in. diameter holes, 150/sq in. in sheets of steel .004-in. thick. Punching produces a five-sided burr in a uniform wave pattern. Scrapings produced are indistinguishable from ordinary sanding or sawdust.

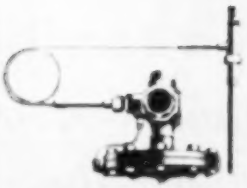
◆ TEST GAUGE by Manning, Maxwell & Moore has movable dial graduation tabs replacing graduations printed on the dial. Reading 1%, 1/2% and 1/4%, they indicate deviations from standard reading in terms of percent of total error. There are no intermediate dial graduations. Movable tabs make gauge easy to recalibrate in the field — each tab can be individually and precisely set against a standard.

◆ 750,000 VOLT TRANSMISSION SYSTEM to be built next year by G-E continues the trend toward higher and higher transmission voltages for sending power over distances with minimum loss. Four and one-half mile experimental line will be energized at 460,000 to 500,000 volts in its first year of operation and at 600,000 to 750,000 volts in its second and third years. Later it may be altered to send million-volt power.

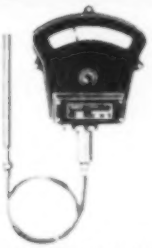
◆ SMOKESTACKS — glass-fused-to metal (Permaglas by A. O. Smith Corp.) will eliminate many maintenance, repair and replacement problems. Life span is from 3 to 5 times that of a conventional steel stack in similar service. Increased life is result of the glass bonded to steel. Glass can't rust so there is a bare minimum of maintenance.

◆ DON'T MISS "BETTER PRODUCTION—58" where Southern & Southwestern design, operating and maintenance personnel will tell how they overcame plant difficulties and improved service. Over 80 from-the-plant case studies in SPI's 11th Annual BETTER PRODUCTION Issue in October will report improvements in electrical systems and controls, lubrication, maintenance, water systems, power and steam generation, etc.

Sarco Type 21 Self-Powered Temperature Regulator

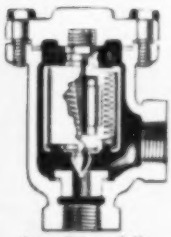


Sarco Type 24-30 Self-Powered Pilot Operated Temperature Regulator



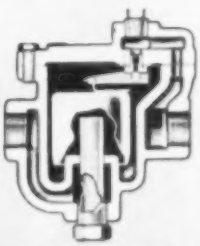
Sarco Type LSI Electric Indicating Temperature Controller

Sarco Thermo-Dynamic Steam Trap



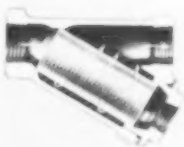
Sarco Thermostatic Steam Trap

Sarco Float-Thermostatic Steam Trap



Sarco Inverted Bucket Steam Trap

Sarco Liquid Expansion Steam Trap



Sarco Pipe Line Strainer

These SARCO products also are available locally

Air Eliminators
Balancing Fittings
Cooling Controls
Compressed Air Traps
Dial Thermometers
Condensate and Vacuum Pumps
Lift Traps
Electric Thermostats and Pressure Switches
Finned-Tube and Baseboard Radiation
Water Blenders
Motor-Operated Valves
Radiator Traps
Radiator Valves
Room Thermostats
Solenoid Valves
Weather-Compensated Heating Control Systems

Depend on your SARCO sales representative to supply you with this complete

SARCO QUALITY LINE

Through your nearest Sarco sales representative, you can get every product in the complete line of Sarco traps, temperature controls and steam specialties. For your convenience, the complete list of Southern States Sarco sales representatives is printed here, arranged by states. 5912-B

These are your SARCO Southern States sales representatives

ALABAMA
Birmingham
Bratton Sales Engineers
Mobile
Bratton Sales Engineers

ARKANSAS
Little Rock
J. L. Brown Sales Co.

D. C.
Washington
Sarco Company, Inc.

FLORIDA
Tampa
O. H. Howell Mfrs. Agent, Inc.

GEORGIA
Atlanta
John F. Templeton Co.

KENTUCKY
Louisville
The Consolidated Engineering Sales Co.

LOUISIANA
New Orleans
Frank A. Birdsong
Shreveport
J. W. Cherry Company

MARYLAND
Baltimore
J. E. Perkins Corp.

MISSISSIPPI
Jackson
Robert Porter

MISSOURI
Kansas City
Smith Steam Spec. Co.
St. Louis
George W. Pieksen

NORTH CAROLINA
Greensboro
Hoffman & Hoffman Co.
Raleigh
Hoffman & Hoffman Co.

OKLAHOMA
Tulsa
Vanco Engineering Co.

SOUTH CAROLINA
Columbia
Hoffman & Hoffman Co.
Greenville
Hoffman & Hoffman Co.

TENNESSEE
Knoxville
G. Walter Sutton & Son
Memphis
J. B. Lammons Company
Nashville
R. E. Gardner Co.

TEXAS
Dallas
Gilbert Engineering Co., Inc.
El Paso
Engineered Equipment, Inc.
Houston
Esch and Associates, Inc.
San Antonio
L. S. Pawkett & Co.

VIRGINIA
Richmond
Robert S. Lovelace Co.

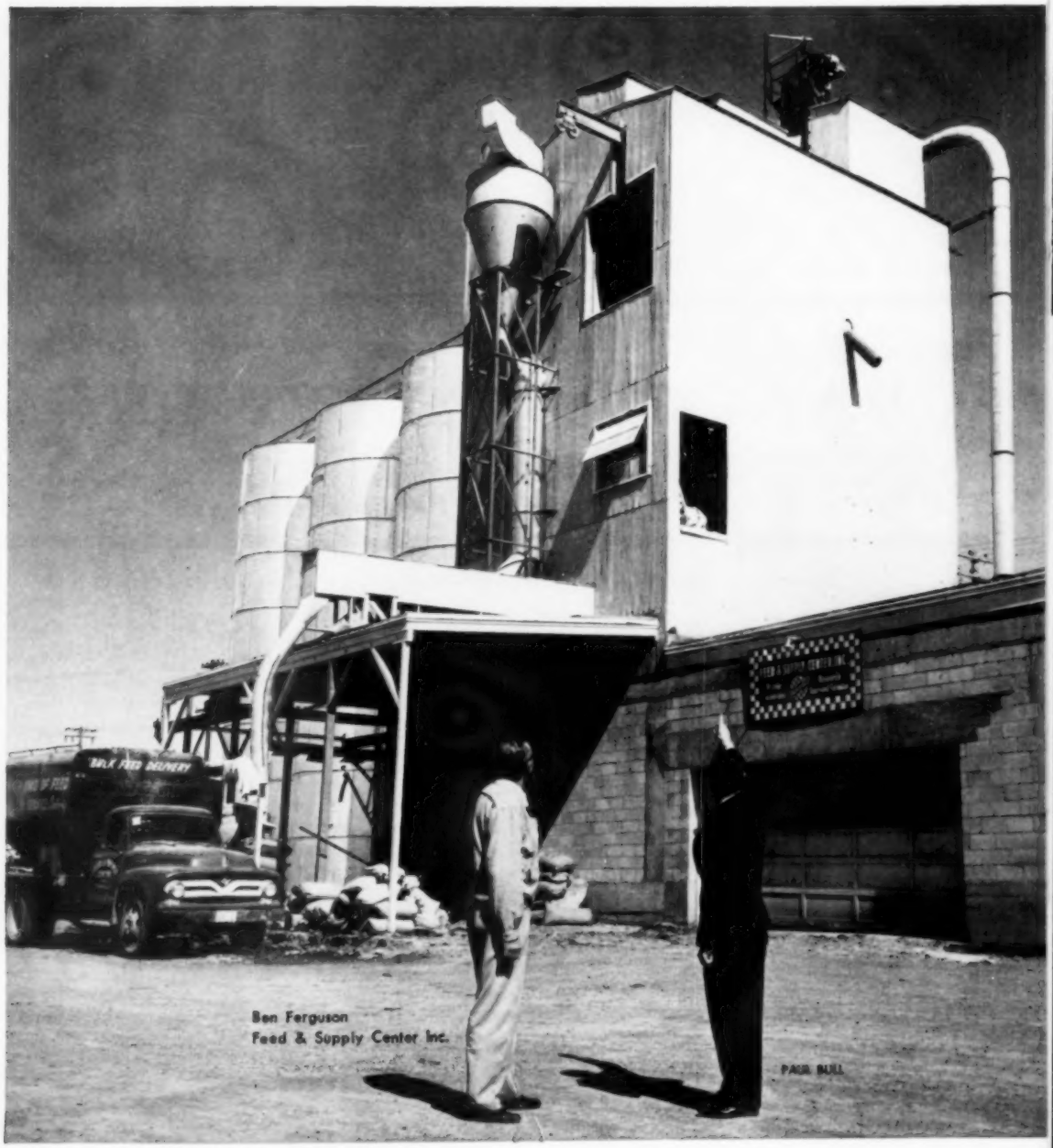
WEST VIRGINIA
Charleston
Angus Gillis & Son

SARCO
COMPANY, INC.
635 Madison Ave., New York 22, N. Y.

"A bent shaft on an elevator motor might have caused a terrible accident

... *if Fusetron dual-element Fuses had not shut down the motor*"

PAUL M. BULL, Commercial,
Industrial Representative
Idaho Power Co., Twin Falls, Idaho



For more information, use Reply Card—Page 83

Mr. Bull continues:

"As a Commercial and Industrial Representative for the Idaho Power Co., I was asked to redesign the electrical work for the Feed & Supply Center Inc., Twin Falls, Idaho. The installation was handled by Detweiler, an electrical contractor.

"When the job was completed, Fusetron fuses kept blowing on a 15 hp., motor that operates the elevator.

"Larger size Fusetron fuses were tried and the result was almost disastrous.

"When the motor started the whole elevator shaft shook as if it would tear apart. Everyone was afraid that at any second the motor and apparatus would come crashing down the shaft.

"Fortunately, the Fusetron fuses opened and stopped the motor.

"A thorough check revealed that the shaft of the motor was bent in transit.

"If Fusetron fuses had failed to open to protect the motor, there might have been a terrible accident."

You too, can benefit by the 10 point protection of Fusetron fuses.

Fusetron dual-element fuses offer the safest, most complete electrical protection possible. With rare exceptions on commercial and industrial installations — ordinary fuses and circuit breakers protect only against short-circuits — but Fusetron dual-element fuses provide 10 point protection.

Why Risk Losses! One burned out motor . . . one needless shutdown . . . one destroyed switch or panel . . . one burned out solenoid . . . may cost you far more than replacing every ordinary fuse with Fusetron dual-element fuses.

BUSS Hi-Cap Fuses—High Interrupting Capacity above 600 and up to 5000 amperes

BUSS Hi-Cap fuses offer unlimited interrupting capacity for circuits of 600 volts or less. Their high speed operation on heavy shorts limits current to safe values. This minimizes damage to equipment and cuts down dangerous stresses on transformers.

These fuses can be coordinated with Fusetron fuses to isolate fault to circuit of origin.

BUSS Limitron Fuses — Limits Fault Current to Very Low Values

BUSS Limitron fuses have extremely fast opening characteristics to prevent heavy short-circuit currents from building up under fault conditions.

For more information write for —

Bulletin FIS *on Fusetron dual-element fuses.*
Bulletin HCS *on BUSS Hi-Cap fuses.*
Bulletin HLS *on BUSS Limitron fuses.*

Bussmann Mfg. Div.
McGraw-Edison Co.
University at Jefferson,
St. Louis 7, Mo.

Play Safe! install FUSETRON dual-element FUSES and BUSS Hi-Cap FUSES throughout entire Electrical System!

Southern Industry Continues to Rise

Processing Plants One of Greatest Assets

THE SOUTH has been weathering the "recession" distinctly better than other areas of the United States.

If you've been standing too close to your own problems to see how the Southland — the 19 Southern and Southwestern states — has continued to rise in the face of a temporarily slowed economy, step back a few notches and consider why we are blessed by living in an area which is now the nation's No. 1 economic asset.

From the facts and conclusions that follow, all of us should draw comfort from the clear signboards that the Southland — far more than any other area—is topping, Goliath-fashion, the less-well-situated regions.

The depressed state of business evident in the North, East, and West is much less noticeable in the South. Of all the various indicators you can examine, none reflects good jobs and public sentiment more quickly or more accurately than retail sales. People spending money freely are happy, confident people whose faith in themselves and their future is backed up with cash. In the South consumer buying continues to be heavy.

Sales

Over-all retail sales in stores other than the larger chains in March of this year exceeded those of February by $359 million and January by $66 million in Alabama, Florida, Georgia, Mississippi, Tennessee, the Carolinas and Virginias, Maryland, Delaware, Kentucky, Arkansas, Louisiana, Oklahoma, Texas, and the District of Columbia.

Of $3,326 million which cash registers rang up in March, $667 million was spent in food stores, $210 million in eating and drinking establishments, $186 million for general merchandise, $208 million for apparel, $176 million for furniture and appliances, $257 million for lumber, building materials, hardware, and farm equipment, $349 million at gasoline service stations, and $122 million for drugs and proprietaries, all of which showed increases in sales in March over February. March sales brought to more than $9½ billion the cumulative total of such transactions in the South in the first quarter of 1958, according to a Bureau of Census survey.

The increase in sales in March over February came in the broad South, while the retail trade field in the Northeastern and North Central sections of the country were experiencing downtrends.

Employment

Employment figures reveal that the South as a whole is relatively better off than other regions. Only seven per cent of the South's labor force was unemployed in April (the last full month for which figures are available), whereas 7.8% of the workers were seeking jobs in the Northeast, 7.5% in the North Central region and 8.3% in the West.

In the year from April, 1957 to April, 1958 most of the unemployment in the South was registered in farm jobs. In April of this year 82.2% of the South's labor force had jobs in non-agricultural occupations; this was only 1.1% less than in April, 1957. Thus far the greatest loss of jobs has been in Southern agriculture, where the drop has been 1.8% in a year's time, due primarily to continued farm mechanization and the attraction of industrial employment.

Farms

It is recognized that for retailers in the small-town market which comprises much of the South, no economic trend is more significant than the continuing rise in cash farm income. Retail trade in these rural areas is so closely linked to the fortunes of agriculture that as the farmer prospers so do the independent retailers.

Income received by Southern farmers in the year's first two months averaged more than eight per cent above the 1957 period, and

By RICHARD P. SMITH
President
W.R.C. Smith Publishing Company

SOUTHERN POWER & INDUSTRY is one of six business magazines published by the Smith organization. Others are: Textile Industries, Electrical South, Southern Hardware, Southern Automotive Journal, and Southern Building Supplies.

Recently elected Chairman, National Business Publications, Inc., Dick Smith is well informed on business activity throughout the Nation, as well as the special fields covered by the six magazines published by the company he heads.

NBP is a national business press organization representing 205 American and Canadian publishers of technical, professional, scientific, industrial, merchandising, and maketing magazines. Its objective is advancement and improvement of the business press.

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RELIABILITY

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VARIETY OF GRADES AND STRENGTHS

A BASIC PRODUCER TC TENNESSEE CORPORATION FROM MINE TO FINISHED PRODUCT

SULFURIC ACID

TENNESSEE CORPORATION, The Southeast's Leading Sulfuric Acid Supplier

Whether your Sulfuric Acid requirements are an occasional tank car or large tonnages, check with Tennessee before making your decision. You will find our acid attractively priced, high in quality, consistently available and backed by outstanding customer service gained through years of growth and experience.

Our complete control of raw materials from mine to finished product allows our total independence from elemental sulfur and enables Tennessee Corporation to accommodate and ship large tonnages of acid quickly and with minimum notice.

The sulfur contained in the ore we process yields Virgin Sulfuric Acid of highest quality free from organic matter, very low in iron, and in no way contaminated from regenerated or spent sulfuric acid sources.

TENNESSEE COPPER CO., DIVISION TENNESSEE CORPORATION, COPPERHILL, TENNESSEE, produces all commercial grades and strengths of Sulfuric Acid from 60 Baume through the various Oleums.

We would welcome the opportunity to tell you our story. Call JAckson 3-5024 Atlanta, Georgia, or write—

TC TENNESSEE CORPORATION

TENNESSEE CORPORATION

617-629 Grant Building, Atlanta 3, Georgia

College puts

coal at head of class

Otterbein College saves 42% with coal, installs revolutionary package boiler

Otterbein College, Westerville, Ohio, has discovered truly efficient heat generation. Otterbein's new heating plant burns coal in Coal-Pak boilers—developed by Bituminous Coal Research, Inc.—for automatic performance plus unique simplicity of operation. The result . . . savings in manpower . . . and a spotlessly clean plant.

In addition, comparative fuel cost studies have proved that coal costs 42% less per million Btu than the nearest competitive fuel in this area . . . a bonus savings! And, in keeping with the modern operation of this plant, the entire interior has been brightened by an attractive color scheme.

Facts you should know about coal

You'll find that bituminous coal is not only the lowest-cost fuel in most industrial areas but up-to-date coal burning equipment can give you 15% to 50% more steam per dollar. Today's automatic equipment can pare labor costs and eliminate smoke problems. And vast coal reserves plus mechanized production methods mean a constantly plentiful supply of coal at stable prices.

Technical advisory service

To help you with industrial fuel problems the Bituminous Coal Institute offers a free technical advisory service. We welcome the opportunity to work with you, your consulting engineers and architects. If you are concerned with steam costs, write to the address below. Or send for our case history booklet, complete with data sheets. You'll find it informative.

Consult an engineering firm

If you are remodeling or building new heating or power facilities, it will pay you to consult a qualified engineering firm. Such concerns—familiar with the latest in fuel costs and equipment—can effect great savings for you in efficiency and fuel economy over the years.

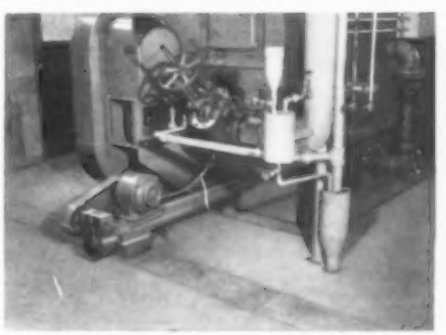
BITUMINOUS COAL INSTITUTE

Department SP-8

Southern Building • Washington 5, D. C.

Heating plant at Otterbein showing the three Coal-Pak Automatic Water Tube Generators, by International Boiler Works Co. (Licensed under pending patents of Bituminous Coal Research, Inc.) Coal storage hoppers at top of photograph hold 30-35 tons of coal each.

Single switch on front of cabinet enables operator to change from "run" to "hold-fire" operations. Each generator has its own rugged, non-electronic combustion control system, housed in tamper-proof locked cabinet. It controls safely and efficiently the starting-up sequence, coal feed, fuel-air ratio, hold-fire operation and ash removal.



Rear of generator, showing part of dustless ash disposal system. Ash removal is an integrated feature of the package operation—no manual handling. Ashes are removed by screw conveyor. They pass into main screw conveyor recessed into the floor (covered by metal plate) and are carried outside.

Coal is delivered by truck and dumped through any of nine manholes into storage hoppers below. From hoppers, it is gravity fed into stokers. Four-foot wall around coal dumping platform permits use of platform for outside coal storage, holding additional 250 tons.

in mid-March national figures were at the highest level in five years. The annual rate of Southern farm income in the two months was $7.2 billion as compared with $6.6 billion a year earlier.

With farm income more than keeping pace with increased costs of production items, the U. S. Department of Agriculture predicts that net farm income for 1958 will be five per cent ahead of 1957.

This increase then in *net* farm income is the significant fact, for it signals: 1. An improvement in the farmer's ability to purchase. 2. His re-entry into the market for virtually all categories of products.

Recent trade surveys by *Southern Hardware* — one of our six publications — have revealed the soundness of the independent retailers' competitive position in this important small-town market as contrasted with the position of many of their big-city brothers. In the rural towns and cities — locations free of the domination of department stores, mail-order outlets, and discount houses — price structures tend to remain firm and profit margins are more dependable. In most areas of the South, dealers are free of such competition and buy with the confidence that traditional margins can be maintained. Irresponsible price cutting and sales with limited profits are *not* characteristics of the Southern market, and therein lies much of the strength and importance of the small-town retailer.

Incorporations

While the reactions of millions of Southern consumers are of vital economic importance, the reactions of businessmen also have an impact on the Southern economy that cannot be ignored. Perhaps the best gauge of business sentiment is the 5.8% increase in Southern business incorporations which was recorded in 1957 over 1956. However, you cannot realize the full impact of this fact until you contrast it with a national average which showed a 4.1% loss.

Manufacturing

Since 82.2% of Southern workers are in non-agricultural jobs, manufacturing rates a large share of the credit for our present satisfactory situation. Perhaps the principal reason the South has not experienced the same business drop that has hit other regions is that our plants are larger and the products are more basic — processing raw materials through initial stages. We have relatively fewer finishing plants. Consequently, periodic changes in consumer demand are dampened somewhat before affecting our large processing industries.

Let's try to look simultaneously in two directions — at the big processing plants that we now have in the South, and at the coming finishing plants that will convert these processed materials into finished products to meet a fast-growing consumer demand. We already have an enormous stake in the processing industries and our potential in the finishing plants that are rapidly developing is equally important.

Now the picture is changing rapidly. Many small new industries are being established to furnish supplies to the older big plants, and while the total of consumer products plants is not yet impressive, percentage growth is enormous. These trends will continue at a more rapid pace.

One outstanding example serves to substantiate the above statements: electrical machinery and equipment.

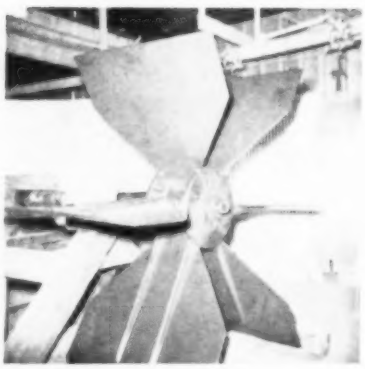
General Electric and Westinghouse have led the parade. There are now 22 major G-E plants in our area, producing transformers, distribution equipment, instruments and controls — and the enormous G-E electrical appliance plant at Louisville. The same is true of many other large national companies.

Automobiles

Another example is the great Ford glass plant at Nashville, Tenn. (yet a small portion of the $400 millions spent by Ford alone in the Southland since World War II), and most recently announced, is a 1,300,000-square-foot Chrysler Corp. plant for St. Louis, Mo.

In discussing selection of St. Louis, Vice President Newberg of Chrysler said that the site was "close to the heart of a rapidly expanding automobile market in the South-Central and Southwest areas of the United States."

General Motors Corp. has been active, too, with such projects as the tremendous Buick, Oldsmobile, Pontiac assembly plant close to Atlanta, Ga., and plans to approximately double the Atlanta Chevrolet plant by adding 385,000 sq ft of factory space. The true picture of motor vehicle usage is revealed by gasoline consumption figures which show current annual purchases in the South to be almost 21 billion gallons, or nearly 1,000 gallons per vehicle. This is 37.1% of the U. S. total and this



This fan rotor, to be used in a ventilating system handling corrosive gases, was completely encased with a 3/16 in. layer of Plastisol in one single dip.

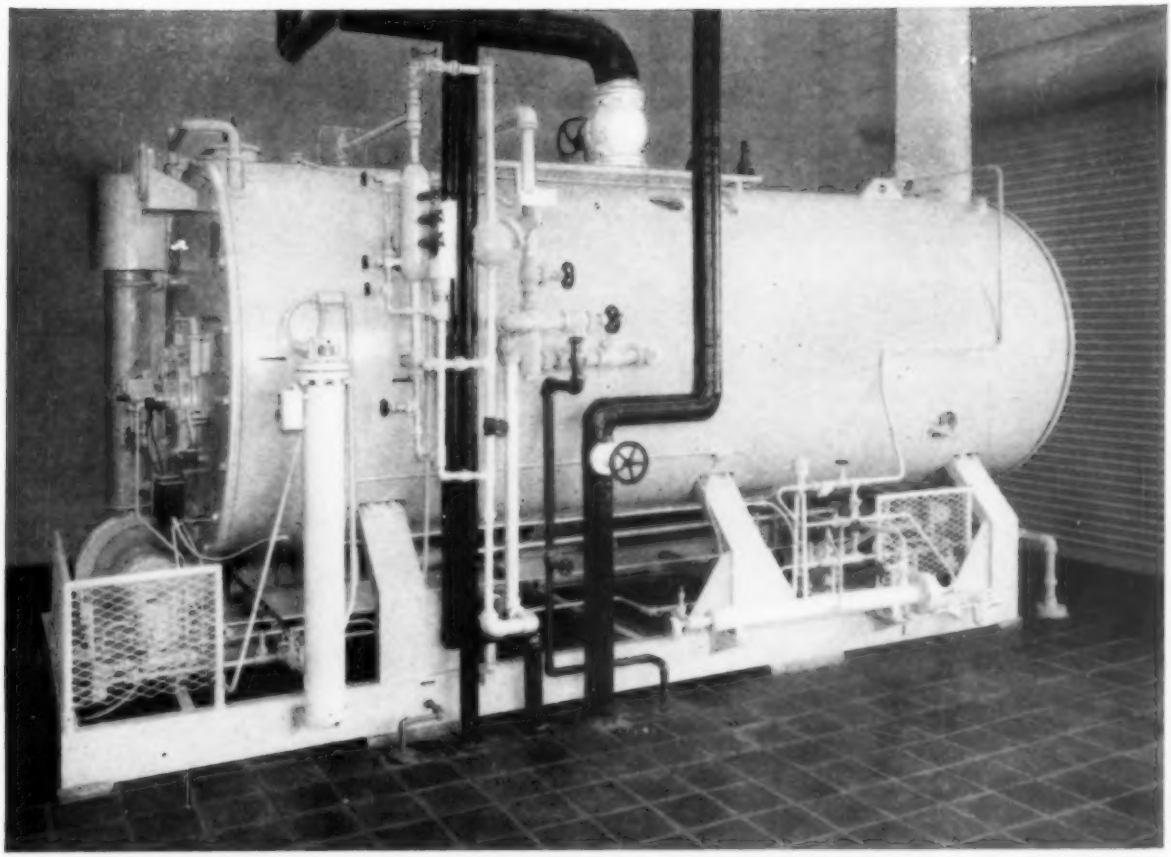
FLORIDA PLANT FOR QUELCOR

To serve the Southern process industries, Quelcor Inc. of Chester, Pa., manufacturers and applicators of P.V.C. Plastisols, have opened a branch plant at 1555 East Georgia St., Bartow, Florida. **Mr. H. C. R. Folmer** is vice president of the new company — **Quelcor of Florida, Inc.**

The Quelcor method of corrosion protection consists of dipping the part to be coated in a viscous dispersion of polyvinyl chloride resin and heat fusing the resin to the metal. Result is a continuous film that has excellent corrosion and abrasion resistant properties.

Applications include exhaust ducts, chemical pump parts, floor grating, fans, pipe and fittings, etc. Coating, resistant to virtually all inorganic chemicals, can be varied in thickness from 1/32 to 1/4 of an inch in a single dip.

In addition to dip coating facilities, the Bartow plant is equipped to line tanks with P.V.C. sheet in any thickness.



200 HP AMESTEAM GENERATOR Installation at U. S. Concrete Pipe Co.

LOW COST STEAM DELIVERED BY AMESTEAM GENERATORS BRINGS REPEAT ORDERS FROM U. S. CONCRETE PIPE

Why is it that AMESTEAM GENERATOR customers are almost always *repeat* customers? The reason can be summed up in these words: "Lower Cost Steam". One of these repeat customers is U. S. Concrete Pipe Co., Relay, Md. This firm is one of the leading producers of large concrete drainage pipe and allied products.

Recently the company needed a boiler to supply steam for the structural curing of various concrete products. Successful experience with the AMESTEAM GENERATOR "Package" Boilers proved elsewhere in other plant operations led to selection of the 200 HP unit shown above. U. S. Concrete Pipe found that this AMESTEAM GENERATOR provides the most economical and efficient solution to this important steam problem.

Here is another of the hundreds of users whose complete satisfaction with AMESTEAM's low-cost, dependable performance is indicated by the repeat orders we continue to receive from them. This record for repeat orders is based on AMESTEAM GENERATOR's reputation for *Low Cost Steam*, faithfully delivered over a long period of years.

What's YOUR Steam Problem?

If you need 10 to 600 HP and want the kind of space-saving, trouble-free service enjoyed by satisfied owners of AMESTEAM GENERATORS, write today for our catalog and the name of your nearby Amesteam Dealer.

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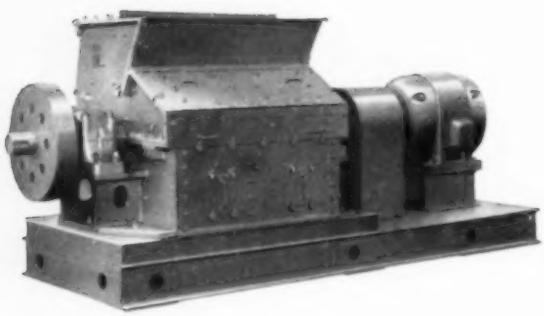
Box L-88, Oswego, N. Y.

Pope & Talbot, Inc. of Portland, Oregon, engineers these boards in strengths and surfaces to meet rigid customer requirements.

Sized by Jeffrey Shredders for Particle Board and Flakeboard



Jeffrey Type B-3 Wood Shredder

Two Jeffrey Shredders are kept busy on this Pope & Talbot board production. One reduces Douglas fir shavings to sizes suitable for Particle Board, the other reduces thin wood flakes for Flakeboard. Both boards are solid and dense, permitting mortising, jointing and excellent laminating.

Jeffrey Shredders are able to handle the toughest reduction jobs, but require surprisingly little upkeep. They're efficient, reducing materials to desired sizes while producing a minimum of fines.

Jeffrey Shredders and Wood Hogs are described in Catalog 855A. For a copy, write The Jeffrey Manufacturing Company, 898 North Fourth Street, Columbus 16, Ohio.

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Pioneering power from an uncommon fuel

Producing power profitably on a large-scale, commercial basis from delayed refinery coke has been accomplished for the first time on the East Coast at the new Yorktown Station of the Virginia Electric & Power Company.

This pioneering steam power plant burns delayed coke, which is economically available from the neighboring refinery of American Oil Company, supplemented by bituminous coal and refinery gas. Today, out of its initial 150,000 kw capacity, the Yorktown Station fulfills the refinery's electric power needs . . . and brings significant operational savings to both the utility and the oil company.

Stone & Webster Engineering Corporation was associated with this power station project from its inception — through the negotiations between the utility and the refinery and the design and construction — to its commercial operation, and is presently engaged on the installation of the second 150,000 kw unit.

Stone & Webster's skill and experience is available to you anywhere in the world . . . for a single phase or for full responsibility for the completion of your project.

STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY OF STONE & WEBSTER, INC.

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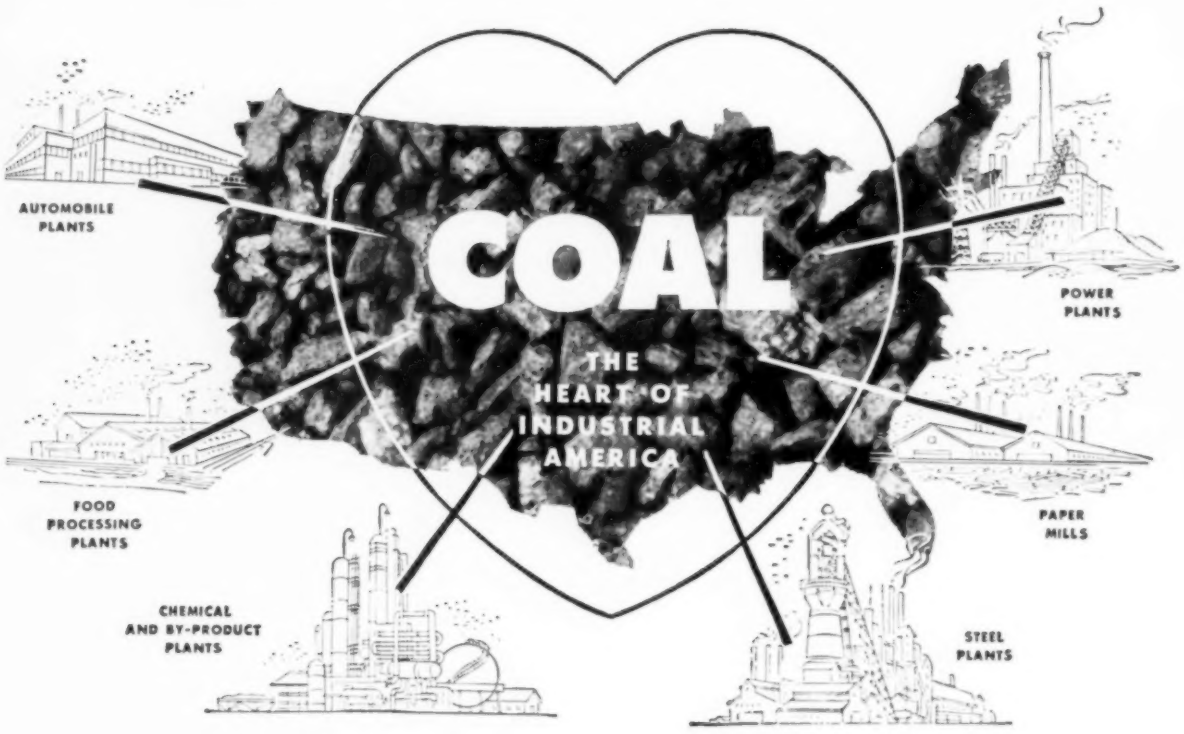
FUEL SATISFACTION



Coal is used by many industries in many ways, and no coal fits the varied industrial needs like Fuel Satisfaction — the superior all-purpose Bituminous Coal mined along the Norfolk and Western.

The name Fuel Satisfaction covers a wide variety of low, medium and high volatile coals. One of these is ideal for your job, whether you use coal for power or special purposes.

Let us help you select the right coal for your operation . . . for increased efficiency and economy. Our experienced combustion engineers will be glad to discuss your utilization problems . . . without obligation. Write or call any of the N&W's regional Coal Bureaus across the nation.

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Roanoke, Virginia

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Commerce Building
Telephone LIberty 2-2229
Boston 10, Massachusetts

CHICAGO
Room 604,
208 South LaSalle Street
Telephone RAndolph 6-4634
Chicago 4, Illinois

CINCINNATI
913 Dixie Terminal Building
Telephone DUnbar 1-1325
Cincinnati 2, Ohio

CLEVELAND
Room 722,
The Illuminating Building
Telephone MAin 1-7960
Cleveland 13, Ohio

DETROIT
1907 Book Building
Telephone
WOodward 1-2340 or 1-2341
Detroit 26, Michigan

ST. LOUIS
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WINSTON-SALEM
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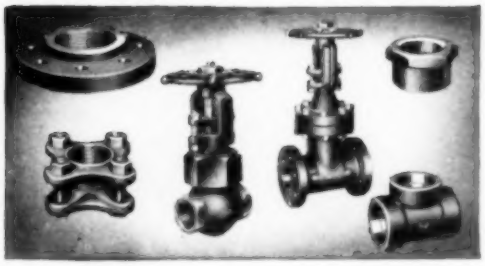
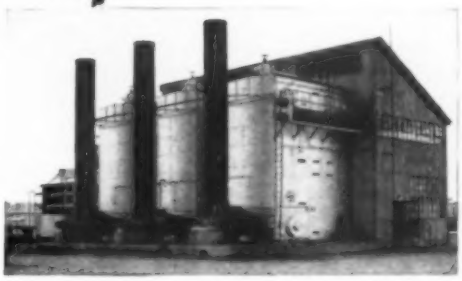
Designed for today's *Tough* service demands



DROP FORGED VALVES AND FITTINGS FOR TOUGHNESS AND TROUBLE-FREE SERVICE

Drop forged from carbon and alloy steels, Vogt valves, fittings and flanges will safely handle liquids and gases at high pressures and high temperatures in power plants, chemical plants, petroleum refineries, etc. The complete line includes flanged, screwed and socket weld end globe, gate and check valves—ells, tees, and crosses—couplings—bushings—plugs—unions—flanges and flange unions—and welding heads.



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Vogt steam generators are designed to give maximum rating in a minimum of space, with high efficiency and low maintenance expense. Bent tube types and straight tube, forged steel sectional header types to burn solid, liquid or gaseous fuels meet every power, process or heating requirement.

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Vogt constructs process equipment in wide variety to all Codes. Stills and towers, oil chillers, crystallizers, heat exchangers, molding machines, etc., serve in the manufacture of oils, greases, 100 octane gasoline, synthetic rubber, chemicals and related products around the world.

SPECIAL MATERIALS COMBAT CORROSION AND PRODUCT CONTAMINATION

Our modern shops produce a wide variety of equipment from special metals and alloys to fight corrosion and product discoloration or contamination. Fabrication procedures insure that corrosion resistant properties of welds will match that of the materials used to construct the equipment.

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For more information, use Reply Card—Page 83

proportion is showing steady annual increases.

Power

Industry, large and small, is dependent on power, which today means the production, transmission and distribution of electrical energy. To meet the demands originating in manufacturing plants, homes, stores, warehouses and offices, Southern utilities are expanding at a much faster pace than elsewhere.

In just 10 years following World War II, the seven Southeastern states have advanced from the fourth largest producer of electric energy regionally in the nation to the No. 2 position, according to the U. S. Department of Commerce.

In 1957, 108.4 billion kilowatt hours of electric energy were produced in the seven states by utilities and industries, or more than three times the 31 billion kilowatt hours produced in 1947. Last year's 108.4 billion kw/hr produced in the Southeast was exceeded only by the 162 billion produced in the East North Central states.

The Southeast also led the nation in rate of increase and the West South Central section was second in percentage increase.

Forecasts of nearly all Southern and Southwestern utilities indicate huge construction programs during the coming years. The Southern Co. (operating in Ga., Fla., Ala., and Miss.) forecast shows a construction program of $500,000,000 during the years 1958-1960. Since 1927 the rate of growth in the company's energy requirements has been slightly over eight per cent a year compounded annually — equivalent to doubling the load every nine years. Generating units to be installed during the next three years on the Southern Co. system total 1,250,000 kw.

The 1958 program totals $155,000,000 for the Southern system companies: Alabama Power, Georgia Power, Gulf Power, Mississippi Power and Southern Electric Generating Co. This is the largest construction program in the history of the company.

Typical of expansion in the Southwest is a $21,000,000 electric power generating expansion program during the next three years for Southwestern Gas & Electric Co. This includes the addition of 100,000 kw units at the company's two plants in Northwest Louisiana.

Probably the most dramatic Southern developments in power generation lie in the field of atomics. With operation scheduled for April 1960, Industrial Testing Reactors, Inc., is constructing a $12 million nuclear reactor in the Wadesboro-Rockingham area of North Carolina. It will employ about 500 and will attract a large complex of industry into the area.

Oak Ridge (Tenn.) National Laboratory now has six nuclear reactors in operation and the Carolinas-Virginia Nuclear Power Association is building a 17,000 kw nuclear plant at Parr Shoals, S. C., near Columbia. Florida developments include a proposed 50,000 kw atomic plant by the East Central-Florida West Coast groups.

These developments have moved so swiftly in the South that some well-informed persons estimate that it will become one of the South's most important industries in the next 10 years.

This is quite a bold prediction but one must respect it when the recent expansion of atomic industries in this part of the country is taken into consideration.

Housing

With the upsurge of industry, the growth of trade and the consequent expansion of consumer incomes, there has come a great demand for newer and better housing. To meet this demand residential construction has increased steadily. In 1957 the South was the only region showing an increase in dwelling units started over the preceding year. With a total of 346,300 it exceeded any other region and acounted for 33.23% of the U. S. total. This not only reflects Southern prosperity but by an old twist also adds to it, by increasing the opportunities for commerce and employment.

Future

Away back in 1895, my father, the late W. R. C. Smith, Michigan-born and -reared, visited the Cotton States and International Exposition in Atlanta. He was so impressed with what he termed "the nation's last industrial frontier" that he returned permanently in 1905 to establish our present publishing company.

His dream of the South's future has been fulfilled. True, we still have our moonlight and magnolias — our beautiful Southern ladies — some plantations and an occasional mint julep, but those of us who have our roots in the soil of Dixie, and the many transplanted Southerners like my father, can take pride in the fact that the tenacity and energy which characterized our ancestors is still prevalent in the great and growing South.

$1 Million Expansion for Cabin Crafts – Ga.

Cabin Crafts, Inc., has announced plans for a million dollar expansion program for the firm's floor coverings division in **Dalton, Ga.** Contracts have been let for a 75,000 sq ft addition to the relatively new Springdale plant, expected to cost just under half a million dollars with operation anticipated by end of 1958.

Magnesium Plant–Ala.

Brooks & Perkins, Inc., fabricators of magnesium and titanium, has purchased the interest of Dominion Magnesium, Ltd., in the **Alabama Metallurgical Corporation,** constructing a plant at Selma, Alabama for making magnesium from dolomite ore by the ferro-silicon process. Alabama operation will initially have a capacity of 6000 tons per year, or about 10% of 1957 consumption.

$500,000 Charcoal Plant–W. Va.

Kingsford Company of Iron Mountain, Michigan, the nation's largest manufacturer of charcoal, is constructing a new 20,000 sq ft plant near Parsons, West Virginia. Completion is scheduled for late fall.

Raymond Miller, now manager of the Company's Belle, Missouri plant, will be manager of the new West Virginia operation.

REYNOLDS ALUMINUM SUPPLY COMPANY has the longest reach in the industrial South

From Richmond to Miami, Memphis to Savannah—nine completely stocked metals warehouses form a supply network unmatched in the industrial South. These nine distribution centers place Reynolds Aluminum Supply Company within reach of every industrial metals supply problem you may face. Industrial metals of every description and in any quantity are strategically located in over ten acres of warehouse area to serve your metals requirements, large or small. Each warehouse stock includes ample inventory of aluminum mill products, steel, copper and stainless steel. Metal slitters, shears, decoilers, roll formers, corrugators and plate saws are available to give you complete metals service and supply. One call will place a one-stop source of supply at your service. Call the nearest warehouse today for fast and accurate delivery of metals. You will find Reynolds Aluminum Supply Company's long reach in the industrial South an advantage you can use profitably.

ALUMINUM MILL PRODUCTS

- sheet • plate • coil • fasteners
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- screw machine stock
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- rods • bars • tubing • pipe
- cast aluminum tooling plate
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STEEL FLAT SHEETS

- galvanized • cold rolled
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BRASS & COPPER PRODUCTS

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INDUSTRIAL BUILDING PRODUCTS

- heavy gauge aluminum and steel roofing and siding & accessories
- fiberglass panes, panels, domes
- seamless terne roofing
- glass fiber industrial insulation
- aluminum and galvanized nails
- hardboard products
- plastic coated paneling
- plywood • asphalt products

STAINLESS STEEL

- sheet • plate • strip
- rod • bar • angle
- pipe • tube • fittings

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News of the South-Southwest — more power . . . more plants . . . more money

Texas Grating Plant for Borden Metals

Borden Metal Products Company of Elizabeth, New Jersey, has announced construction of a new plant on a 20-acre site at Conroe, Texas. This new Texas plant will be equipped for large scale production of Borden's All Weld Grating as well as stocking all the other types of gratings made by Borden. The Company also has a fabricating plant at Leeds, Alabama.

The factory is expected to be in operation by September. Every type of floor grating and safety step in steel, aluminum, stainless steel, and other non-ferrous metals will be available from this plant.

$1 Million Terminal by Reichhold–Ala.

A one million dollar deep water terminal on the ship channel at Mobile, Ala., is being built by **Reichhold Chemicals, Inc.**

Plans for the new terminal were made by a team of RCI's engineers and chemists headed by P. J. Ryan, vice president in charge of the Southern Division, whose responsibilities will include its overall operation. The terminal will have a capacity of several million gallons of liquids as well as being capable of extensive bulk handling of dry chemicals.

The terminal will include extensive space for drumming and storage of finished products. In addition to all forms of water transportation shipments can be made from the terminal by railroad or truck.

Reichhold Chemicals is also nearing operation on their 14th U. S. plant at Hampton, South Carolina, which will produce 30,000,000 lb of formaldehyde annually.

CP&L STARTS 15TH PLANT

Ground has been broken for **Carolina Power & Light Company's** 250,000 hp outdoor type, coal fired generating plant near **Hartsville, South Carolina** with the first unit scheduled for mid-1960 operation.

Plant site is in the Pee Dee section of South Carolina, five miles northwest of Hartsville. Plant's cooling lake will be formed by the waters of Black Creek, a Pee Dee River tributary.

A 2,500-acre cooling lake will supply the first unit with 150,000,000 gallons of cooling water per day. CP&L's present steam-electric plants obtain water from adjacent rivers, pump the water in canals to the plants, and return it to the river downstream.

The Hartsville cooling cycle will be different. Cooling water will be taken from the lake above the dam, directed through underground lines to the plant, and from there underground again to a cooling canal and back into the lake a mile or so upstream. The re-circulation cycle will make it possible to use the same water over and over.

Ryerson Opens Carolina Plant

Joseph T. Ryerson & Son, Inc., warehousing subsidiary of Inland Steel Company is now serving the Southeastern market from a new, modern steel service plant at Mount Holly and Chemway Rds., **Charlotte, N. C.** Company distributes a complete line of carbon, alloy and stainless steel. Other products include welded wire fabric, open web steel joints, metal fabricating machinery and tools and plastics in the form of rod, sheet, tube, pipe and moulded shapes.

Wilson A. Young is general manager of the new service plant formerly opened in June.

Gerber – N. C.

Gerber Products Company will establish a new plant in **Buncombe County, North Carolina.** The site of the proposed facility is eight miles south of Asheville and 14 miles north of Hendersonville, North Carolina, on U. S. Highway 25.

Construction of a warehouse will begin as soon as possible and will be ready for occupany before the end of 1958. Production facilities will be added from year to year as required.

American Engr.—Houston

American Engineering Co. of Philadelphia, Pa. has announced the appointment of Industrial Handling Engineers, 1200 Bissonnet, Houston 5, Texas as sales representative for Lo-Hed electric hoists and car pullers.

Norton—Southwest

James W. Glasford has been appointed a Refractories Engineer by **Norton Company,** serving industry in Texas, Oklahoma, Louisiana, Arkansas, New Mexico, Colorado and Kansas from headquarters in Houston, Texas.

Bigelow-Liptak—Okla.

A new Mid-Continent Sales Office at 214 Thompson Bldg., 20 E. Fifth St., Tulsa 3, Oklahoma, has been set up by **Bigelow-Liptak Corporation,** manufacturers of heat enclosures for refining, power, metal, coal, cement, glass and sugar industries.

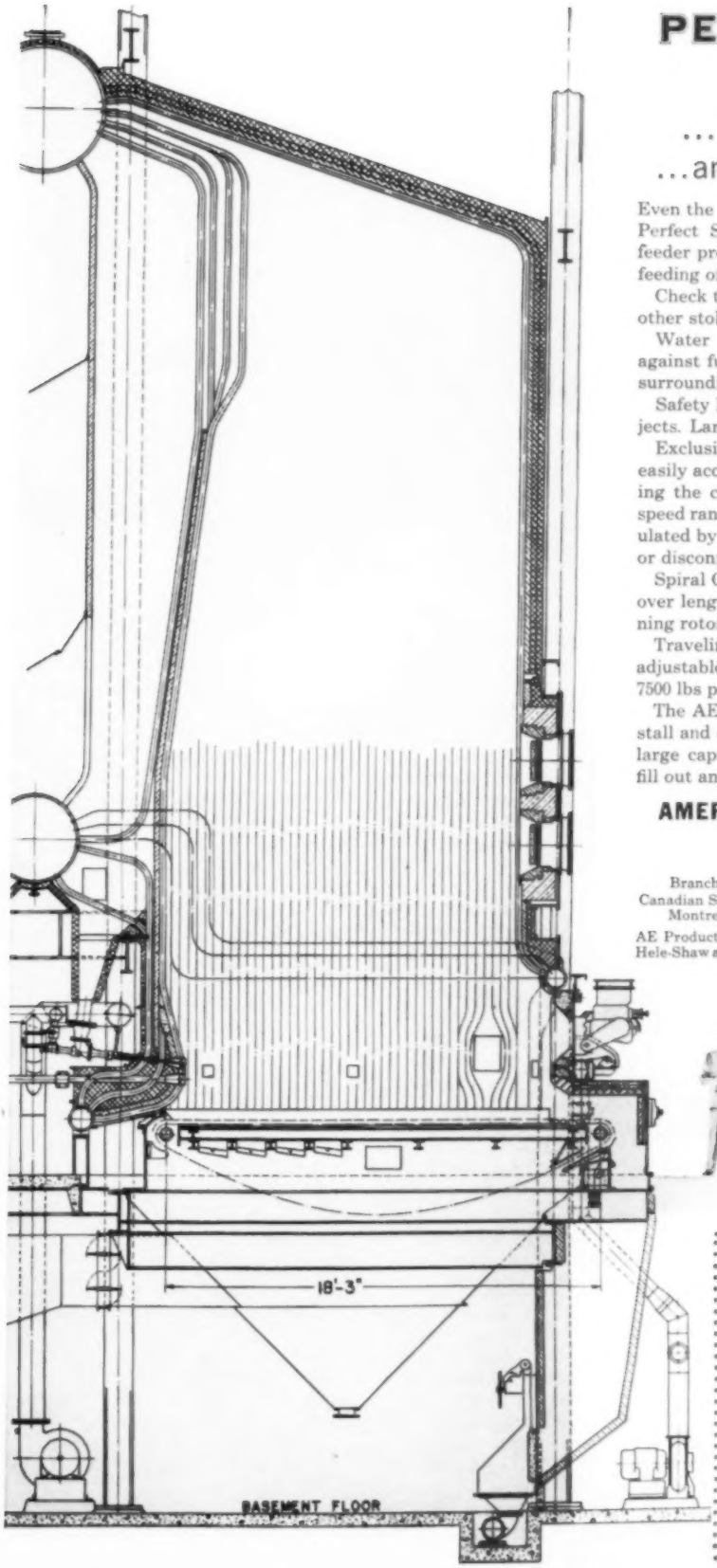
Office, headed by **John A. (Jack) Knebel,** will serve Missouri, Kansas, Oklahoma and the Texas Panhandle.

Bridge Div., U. S. Steel Relocates in Alabama

The Roanoke, Virginia erecting office of **U. S. Steel's American Bridge Division** has relocated in Birmingham, Ala. Dan C. Kline retains his same responsibilities as erecting manager.

A. M. Byers — Ala. & Tenn.

Jones-Sylar Supply Co., Inc., Chattanooga, Tennessee, is now distributing 4-D wrought iron pipe for **A. M. Byers Co.** The new distributor is marketing the pipe throughout southern Tennessee and northern sections of Alabama in cooperation with Byers' Atlanta Division.



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Even the cheapest and wettest coal burns evenly in the Perfect Spread Stoker. Exclusive design automatic feeder prevents clogging, guarantees positive uniform feeding of the finest grades of coal.

Check these AE Perfect Spread features against any other stoker:

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Safety Features—Prevent damage from foreign objects. Large objects stop feeder or rotor without harm.

Exclusive Traveling Conveyor Feeder—All-enclosed, easily accessible mechanism operates in oil bath, driving the conveyor feeder through a widely adjustable speed range smoothly and quietly. Feeder units are regulated by automatic combustion control, can be shut off or disconnected independently of other feeders.

Spiral Overthrow Rotor—Perfect spread distribution over length and breadth of stoker by continuous spinning rotor of exclusive design.

Traveling Grate—Engineered reinjection system—adjustable overfire air nozzles—coal feed from 50 to 7500 lbs per hour.

The AE Perfect Spread Stoker costs less to buy, install and operate. You get large capacity burning and large capacity efficiency. To get full technical details fill out and mail the coupon.

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COMPANY_____

STREET_____

CITY_____ ZONE____ STATE_____

$200 Million Kaiser Aluminum Works Opens in West Virginia

One of the country's most modern and largest integrated production centers for aluminum sheet and foil is now in operation at Ravenswood, West Virginia. **Kaiser Aluminum & Chemical Corporation's** Ravenswood Works is on a 3,000 acre site bordering the Ohio River. The largest single industrial development in West Virginia has over 60 acres under roof.

The fully integrated aluminum production and fabricating center now employs about 2,000 and when all auxiliary facilities are installed by 1960, more than 4,000 will be required.

Technological developments bringing greater economies to the generation of electrical energy by coal-fired steam plants have made it possible for the first time to build such an aluminum center in the Ohio Valley, rather than in areas close to hydroelectric power or near sources of natural gas.

For Kaiser Aluminum also, the move to the Ohio Valley has established a short, direct route for transportation of raw materials. Bauxite is mined by the corporation on the island of Jamaica, shipped to facilities on the lower Mississippi River for processing to alumina, which is then transported directly to Ravenswood.

The Ravenswood Works has the most advanced and highly automated equipment devised for aluminum production, from the reduction of alumina to molten primary aluminum to the rolling of foil as thin as $2\frac{1}{2}$-ten thousandths of an inch.

The "hot line" just put into operation includes three giant-size rolling mills. First is a 168-in. reversing mill, largest in the aluminum industry, which breaks down 10,000 lb ingots. Two 5000 hp motors are needed to power its rolls, and its housing weighs 410 tons, yet the precision of the mill's controls is such that it can roll finished aluminum plate 12 ft wide and 60 ft long.

From the breakdown mill the aluminum moves next through a 110-in. reversing mill and then through the immense continuous 5-stand tandem mill, which is essentially five separate rolling mills synchronized together. From this mill, the aluminum which started its journey down the hot line as an ingot 16 in. thick, emerges as hot-rolled coil perhaps a tenth of an inch thick at speeds up to 1,250 fpm.

The coils from the plant's hot line subsequently are rolled down to the desired gauges of sheet and foil in a succession of cold rolling mills, and given finish treatments to customer specifications.

Still to be installed at Ravenswood are additional cold rolling equipment for plate, sheet and foil, heat treating facilities and the world's largest plate stretcher. Upon its completion, the Ravenswood rolling mill will have an annual capacity of 170,000 tons of rolled aluminum products.

Ky. Chemical Plant for Dewey and Almy

Ground has been broken on schedule at Owensboro, Ky., for the new organic chemicals and battery separator plant of the **Dewey and Almy Chemical Company Division of W. R. Grace & Co.**, Cambridge, Mass.

The modern plant is being built on a 143-acre tract bordered by the Ohio River and U. S. Route 60, three miles east of Owensboro. **James F. Murphy** is project manager and **Daniel Construction Company** the contractor.

Four major buildings are under construction: an office and warehouse building, battery separator building, organic chemicals reactor building, and organic chemicals storage building. They total more than 80,000 sq ft of floor space.

The battery separator plant is slated for completion late this year, and the organic chemicals plant early in 1959.

In organic chemicals, the new facility will more than double Dewey and Almy's capacity for vinyl acetate polymer and copolymer emulsions and styrene-butadiene latices for the paint, paper, textile, adhesive, and rubber industries.

NOT ONE FIELD CUT

in all This

MIDWEST

Shop-Fabricated Piping

...under a subcon...

and I would like to say the West Coast Division have on this job complied fully with the high standards of workmanship for which Midwest is known.

Throughout this entire project not once was a cut necessary to correct any piece of fabrication, and I might add in several instances close tolerances had to be met.

The above was not written on an impulse but as construction superintendent, this means but one thing: fast and low cost erection. Would appreciate your thanking Midwest personally for ...om a construction

Excerpt from letter by:
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Note particularly the words "*fast and low cost erection*" in the above letter. They characterize Midwest Shop-Fabricated Piping . . . whether for refinery, power plant or industrial installations. In this instance they were written by A. H. Chamberlain, construction superintendent, upon completing the installation of a Houdriformer Unit at the U.S. Oil & Refining Co., Tacoma, Washington.

There are three well-equipped Midwest pipe fabricating shops located to serve economically all sections of the country. Each is staffed by a highly skilled organization using the latest techniques. Each has wide experience on all kinds of projects so that the possibilities and limitations of all piping materials are well understood. You too will find it to your advantage to call in Midwest whenever you need fabricated piping.

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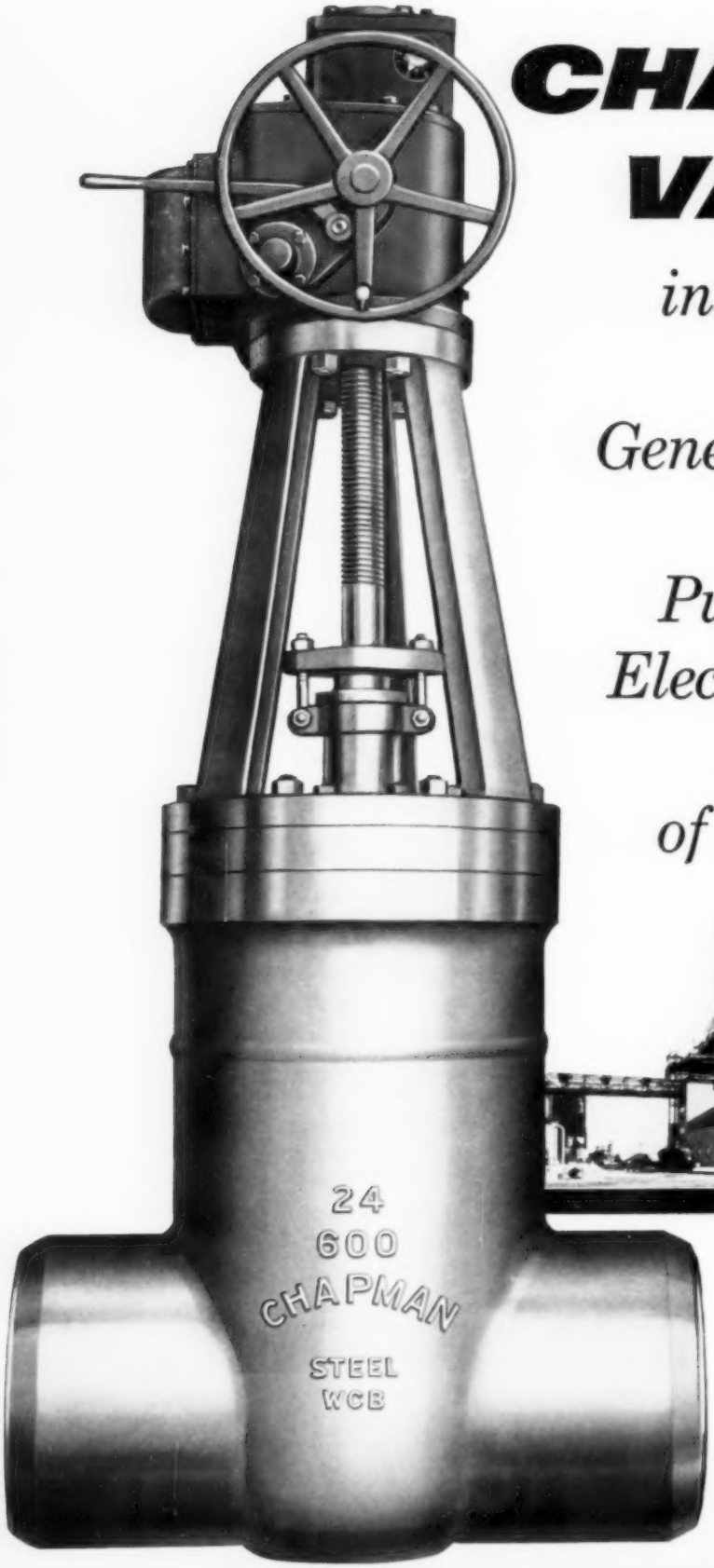
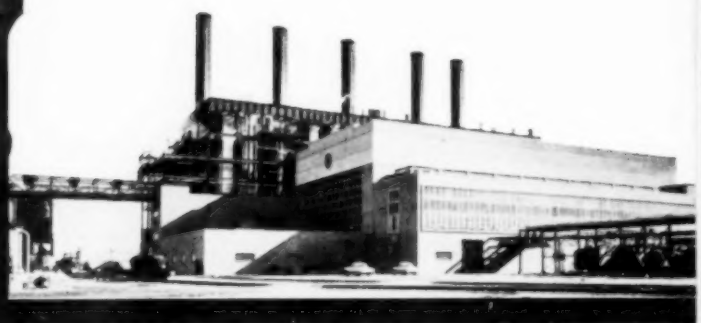
8033

Keeping step with a forward step

CHAPMAN VALVES

installed in the Linden Generating Station for the Public Service Electric and Gas Company of New Jersey





A Chapman high pressure alloy steel gate valve of the type specified for Linden. This valve has pressure seal body-bonnet connection, welding ends, and is equipped for motor operation.

in Steam Power Plant Engineering

Chapman valves in service at the Linden Station.

It's new. It's modern. And it's now in operation. The Linden Generating Station represents a forward step in steam power plant engineering. Designed by the Electric Engineering Department of the Public Service Electric and Gas Company, the plant was built by United Engineers and Constructors Incorporated. The size of equipment, the magnitude of the throttle and process flows, and high operating economy were involved. They sought and got lower operating costs with no increase in steam conditions.

Valves, of course, were also involved. Chapman engineers were prompt to work with the designers and builders of this new station and produce valves that fully met the specific requirements of each application. These included valves for high pressure heater inlets, valves for controlling atomizing steam to desuperheaters, valves for handling high pressure process steam and many others.

No matter what *your* valve requirements might be, it always pays in the first instance and *in the long run*, to talk with a Chapman engineer. Write, and we'll be promptly at your service.

The **CHAPMAN** *Valve Manufacturing Company*

INDIAN ORCHARD, MASSACHUSETTS

For over 75 years, Chapman engineers, metallurgists, manufacturing and testing facilities have concentrated on meeting usual and advanced requirements for power plants, water works, chemical plants, refineries and industrial use.

Ormet's $55 Million Alumina Plant — La.

Burnside, La. Plant Is One of Key Points in $285 Million Ormet Complex

Initial alumina production has started at the new $55 million **Ormet Corp.** plant at **Burnside, Louisiana** and full-scale output is scheduled for September.

Owned jointly by Olin Mathieson Chemical Corp., and Revere Copper and Brass Inc., Ormet was formed in August, 1956 to construct, own and operate primary aluminum production facilities for the two companies.

Other key points in the $285,000,000 Ormet complex — in addition to the Louisiana alumina and the Ohio aluminum reduction plants include:

1) An assured supply of high-grade bauxite purchased from an established supplier in Surinam under a long-term contract.

2) A fleet of ore ships specially designed to transport bauxite from Surinam to Burnside — now being built.

3) Use of the Burnside Bulk Marine Terminal, the largest publicly-owned facility of its type in the Gulf area, with automatic loading and unloading systems far exceeding the needs of the alumina plant.

4) A fleet of barges specially designed to transport alumina, plus a towboat equal in size to the largest now operating on the inland waterways, to transport alumina upriver from Burnside to the reduction plant near Clarington, Ohio.

5) Economical and uninterrupted power — 450,000 kw (more if necessary) — available to the aluminum reduction plant.

Check Out

Located on a 1,000-acre site 30 miles below Baton Rouge on the Mississippi River, the alumina-producing plant has one of its two units in operation with a daily output capability up to 500 tons of alumina. The second unit is scheduled to start in September.

Alumina production began in June following an extensive check out period. The Burnside plant will produce approximately 345,000 tons of alumina per year.

Ships, Barges and Power

Ormet has contracted with an established supplier in Surinam (located on the northeast coast of South America) for high-grade bauxite under a long-term contract. The company started stockpiling bauxite at the Burnside plant site in November, 1956. Starting in 1960, bauxite shipments will total 700,000 tons a year.

Bauxite shipments are currently handled by chartered vessels. The ships transport the ore directly to the Burnside Bulk Marine Terminal, owned by the Greater Baton Rouge Port Commission and leased to Olin Mathieson for operation as a public port facility. Largest publicly-owned facility of its type in the Gulf area, the terminal's ship dock can handle bulk materials at rates up to 1,300 tons an hour.

Ormet will be the first aluminum producer in the nation to ship alumina in bulk by barge. A fleet of 36 specially-designed barges, plus a towboat equal in size to the largest now operating on the inland waterways, have been built to carry alumina up the Mississippi and Ohio rivers to the Ormet aluminum reduction plant.

The Ormet aluminum reduction plant will obtain economical, un-

POWELL

world's largest family of valves

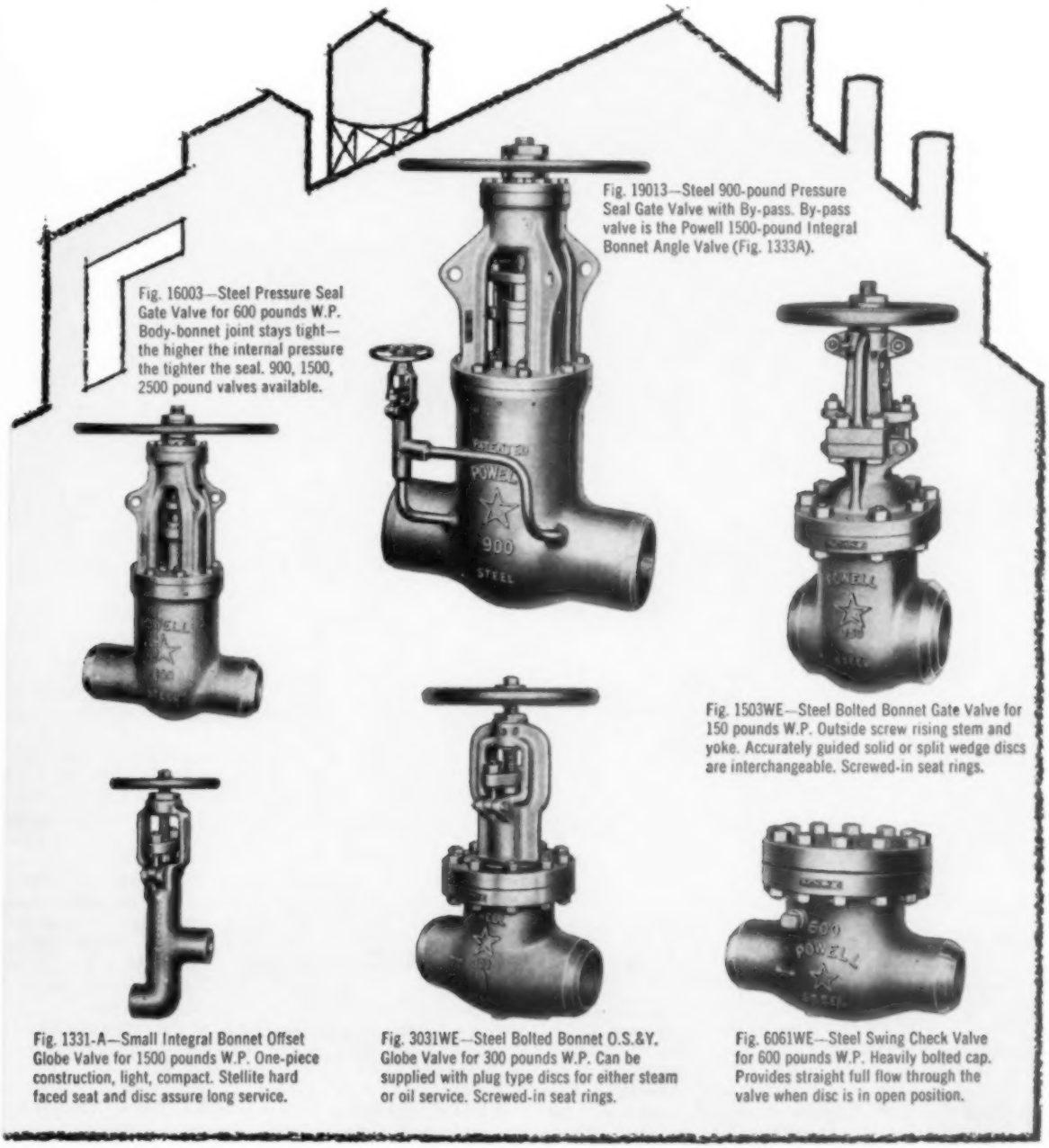


Fig. 19013—Steel 900-pound Pressure Seal Gate Valve with By-pass. By-pass valve is the Powell 1500-pound Integral Bonnet Angle Valve (Fig. 1333A).

Fig. 16003—Steel Pressure Seal Gate Valve for 600 pounds W.P. Body-bonnet joint stays tight—the higher the internal pressure the tighter the seal. 900, 1500, 2500 pound valves available.

Fig. 1503WE—Steel Bolted Bonnet Gate Valve for 150 pounds W.P. Outside screw rising stem and yoke. Accurately guided solid or split wedge discs are interchangeable. Screwed-in seat rings.

Fig. 1331-A—Small Integral Bonnet Offset Globe Valve for 1500 pounds W.P. One-piece construction, light, compact. Stellite hard faced seat and disc assure long service.

Fig. 3031WE—Steel Bolted Bonnet O.S.&Y. Globe Valve for 300 pounds W.P. Can be supplied with plug type discs for either steam or oil service. Screwed-in seat rings.

Fig. 6061WE—Steel Swing Check Valve for 600 pounds W.P. Heavily bolted cap. Provides straight full flow through the valve when disc is in open position.

For every flow control problem Powell offers more kinds or types, available in the largest variety of metals and alloys to handle every flow control requirement. Powell distributors are located in all principal cities and maintain inventories to fill almost any need. For special engineering problems, write direct to:

THE WM. POWELL COMPANY • *Dependable Valves Since 1846* • **Cincinnati 22, Ohio**

interrupted power from the Kammer Plant of Ohio Power Company, Cresap, W. Va., which will have three 225,000 kw units. Two of the units will be owned by an Ormet subsidiary, and Ohio Power Company will own the third and operate all three. The Kammer Plant will generate its power from coal mined adjacent to the facility.

The reduction plant, located 40 miles below Wheeling, W. Va., between Clarington and Hannibal, Ohio, already in operation, should be in full production by the end of the year. Its rated annual production of 180,000 tons of primary aluminum makes it the second largest plant of its type in this country.

The joint Olin Mathieson and Revere effort stops at the end of the ingot line in the aluminum reduction plant and the two companies become competitors in the production and sale of finished aluminum.

Two-thirds of Ormet's annual production of aluminum — or 120,000 tons — is earmarked for Olin Mathieson. Revere will receive 60,000 tons. Most of Olin Mathieson's share will be used in Olin Aluminum's rolling mill, now nearing completion on a site adjacent to the Ormet reduction plant. It is planned that the rest of the aluminum will be shipped to Olin Mathieson Metals division plants in Chattanooga, Tenn., East Alton, Ill., Gulfport, Miss., and Riverside, Calif.

Revere's 60,000 tons will be fabricated at plants in Baltimore and Chicago.

GM Florida Test Field

Ground has been broken for **General Motors Research Staff's** new Florida Test Field where weathering tests are conducted on automotive finishes. The new facility, 256 x 35 ft single story building, located near Goulds and Homestead will replace the present test field near Miami's International Airport.

The Florida facility now averages 25,000 individual tests annually. These are conducted not only for GM Research Staff and the various GM automotive appliance and accessory divisions, but also for many GM suppliers who request "customer research" service for their products.

The program includes not only testing of a finish, plastic, plating material or upholstery before it is accepted for GM production, but also a complete testing program is continuously underway to test materials after they have undergone various types of processing on GM production lines.

SINCLAIR – HOUSTON

Construction of a new plant for the manufacture of paraxylene, a petrochemical, is underway at **Houston, Texas,** according to John A. Scott, president, **Sinclair Chemicals, Inc.,** a subsidiary of **Sinclair Oil Corporation.**

The new facility, which will have an initial yearly capacity in excess of 50 million pounds of paraxylene, will be integrated into the refining units of Sinclair Refining Company at Houston, and is scheduled to be in operation the first quarter of 1959. The Houston unit will also produce about 60 million gallons annually of pure toluene and mixed xylenes, for sale to the chemical industry and for producing high octane gasolines.

Paraxylene, a clear, white, liquid hydrocarbon, is a component of refinery gasoline streams, and is an important raw material for the manufacture of fibres such as Dacron, and chemicals such as Mylar film and Cronar polyester film base.

New Facilities for F. H. Ross & Co. – N. C.

F. H. Ross & Company has announced that construction has begun on extensive new facilities for its home office on Glenwood Drive in **Charlotte, North Carolina.**

The new facilities will consist of a main warehouse containing approximately 40,000 sq ft and a two-story office building containing 16,000 sq ft. In addition there will be a sizable outdoor tank storage area to the rear of the main warehouse.

Plans for the new facility (October completion scheduled) have been completed by Architect **Charles W. Connelly** and the general construction contract has been awarded to **McDevitt & Street Company,** of Charlotte.

The company is a distributor of industrial chemicals; metal finishing chemicals and equipment; laundry and dry cleaning supplies; and material handling supplies and equipment.

PAA Jet Base – Fla.

Pan American World Airways plans to establish a new jet overhaul base, costing $15,000,000 to $20,000,00, on a 112-acre tract at **Miami** International Airport. Construction on the huge facility is expected by July 1.

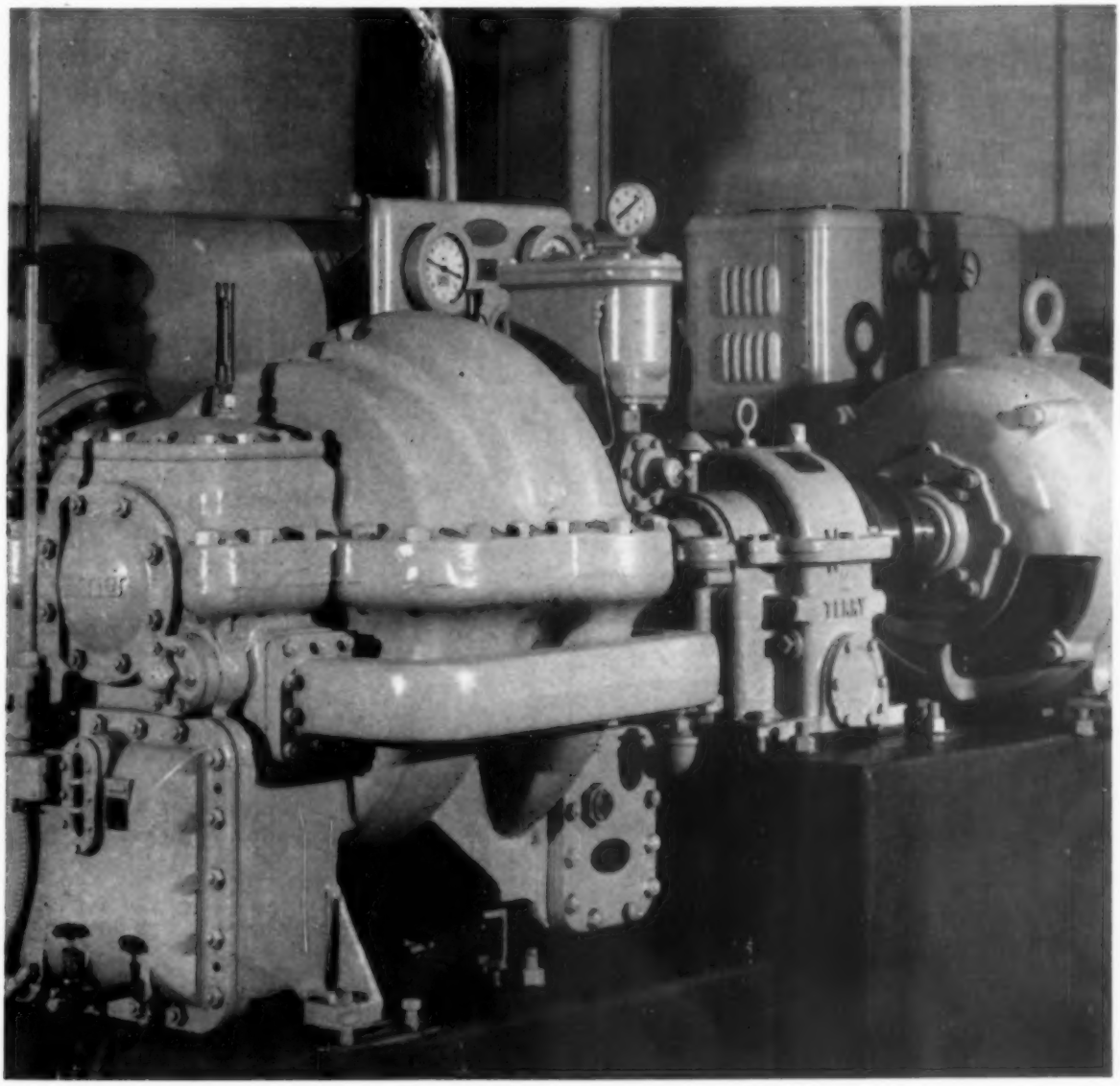
The base will include maintenance shops and supply depots, international cargo area, an executive and general office building, five hangars, two nose docks and 47 acres of paved ramp and taxi area.

$3 Million Inco Expansion at Huntington Works

International Nickel Company's Huntington, West Virginia Works is constructing a new building to house additional seamless tubing and other cold draw equipment and facilities. New $3,500,000 building to be approximately 180 ft wide by 350 ft long, will take care of existing and anticipated demands for seamless cold drawn nickel alloy tubing, especially for extra long Monel tubing. **E. M. Kline** is general manager of the Huntington Works.

Included in the new equipment, which will be located in a new building adjacent to the northeast section of the present Cold Draw Department at Inco's Huntington Works, will be a 150,000 lb draw bench, a 300 ft long gas-fired annealing furnace, four floor-operated overhead cranes, and auxiliary equipment essential to this production. Provision will also be made for high pressure and ultrasonic testing.

(*Continued on Page* 62)



It started over 70 years ago

The unit shown only started Monday morning as usual . . . but the Standard Oil lubricants that keep it rolling trouble-free, day-in and day-out, had their start in southern industry *72 years ago*. During these years changes in power producing machinery have been constantly reflected in new and improved Standard Oil lubricants. The success of Standard Oil lubricants in keeping pace with the growing needs of industry is attested by the continuing *first place popularity* of Standard Oil lubricants throughout southern industry.

Aside from unmatched results in product development and performance Standard Oil's 72 years of experience offer another very practical benefit . . . available to you at any time and at no charge. Through your Standard Oil lubrication specialist Standard Oil's full experience is at your command whenever lubrication poses a problem in your operation. Why not call him in today?

STANDARD OIL LUBRICANTS

STANDARD OIL COMPANY
(KENTUCKY)

INDUSTRY SPEAKS

Either Way . . . You Pay the Bill

SOMETHING-for-nothing approach cannot and never will solve our economic ills or provide this country with a higher standard of living. There is no free lunch — someone has to pay the check.

Speaking recently at the University of the South, Sewanee, Tennessee, **Roger M. Blough**, chairman of **U. S. Steel Corporation** emphasized that although every conceivable device has been tried all over the world to give away to the people more than the people earn, it never has and never will work.

"The total production of all of our people is all that there is for our people. There just isn't any more."

To illustrate the relationship of production to consumption, Mr. Blough said that if all the people each produced a loaf of bread a day, everybody would have a loaf a day for his own use — but if half the people stopped producing, and forced the producers to divide with them, the non-producers would not really be getting something for nothing. On the contrary, they would be sacrificing half of what they formerly had.

"I wish someone had the power to make us all understand that your bills and mine can only be paid by the product of your work and mine . . . when I want more of your production than my production will pay for, I must find additional dollars or else do without."

Government may try to solve that problem by one of two methods. Either it can borrow money to make more dollars available, or it can print additional dollars. The latter method is no solution, because it decreases the value of the medium of exchange, and more dollars will be required to purchase the same amount of goods or services.

Mr. Blough cited three instances in which the "something-for-nothing" philosophy is destroyed by economic reality. Although defending "jobless insurance" to protect the worker in case of emergency, he said "jobless pay" is not economically possible.

"I don't see how it is economically possible to 'pay' anyone for joblessness, since the nation has lost forever the value of what he could have produced — and would have produced — had he been working; and since he, himself, has irretrievably lost his rightful share of that value. In short, nothing has been created out of which to pay him anything."

Another type of "something-for-nothing" approach which will not work is raising the pay of those who do produce without raising their productivity by a like amount. As long as they continue to produce the same amount of goods, additional pay for their work can be obtained only by raising the price of the goods. This cheapens our money and works a hardship on people who have fixed incomes, such as teachers and pensioners. It also cheats most of us, as consumers, who must pay more dollars for less goods.

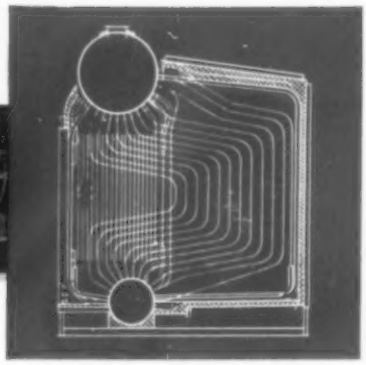
Cutting production by adopting a four-day work week and yet paying as much or more than for a five-day week would have the same ultimate effect, he said.

"We all like to ride on a so-called 'freeway,' yet none of us can for long escape this simple fact: We must all pay the bill . . . as a nation, we must come to realize that the Government never pays a bill except with your money — money that it takes from you directly by open taxation or indirectly, by inflation which furtively taxes away the value of every dollar you have. Either way, when a bill is paid by government, you pay it."

HIGH CAPACITY PACKAGED STEAM GENERATORS

by Foster Wheeler

One of two AG-246 units, each capable of generating 50,000 lb/hr sold to C. F. Braun & Co. of Canada Ltd. for installation at the new Cities Service Oil Co. Ltd. at Trafalgar, Ontario



Series AG-200 extends economy and dependability of FW Packaged Design to over 60,000 lb/hr

To meet the needs of industrial plants for high-capacity Packaged Steam Generators, Foster Wheeler offers units for capacities of 50,000 to 63,000 lb/hr and higher, depending on operating conditions.

A modification of the proven AG-100 design which has provided industry with reliable, economical steam in the range of 10,000 to 50,000 lb/hr, these compact, space-saving units permit more steam capacity in less space than has heretofore been possible. For complete details, write to *Foster Wheeler Corporation, 666 Fifth Avenue, New York 19, N. Y.*

FEATURES:

- Final Steam Temperatures to 840 F
- Design Pressures to 900 psig
- Standard Heat Recovery Arrangements Available
- 42-inch Steam Drum
- Two Burners
- Automatic Controls
- Suitable For Indoor or Outdoor Installation
- Tangent Bare Tube Furnace Side Walls and Roof
- Staggered Boiler Bank Tube Arrangement
- Fully Drainable and Removable Superheater.

THE FOLLOWING AG-200 UNITS ARE NOW IN PRODUCTION:

Capacity lb/hr	Operating Pressure psig	Final Steam Temperature Deg. F	Feedwater Temperature Deg. F	Fuel	Efficiency	Steam Quality
52,500	400	750	200	No. 6 Oil	85.5	3 ppm Solids Carryover
60,000	285	Sat.	220	Nat. Gas	78.3	3 ppm Solids Carryover
63,700	150	Sat.	225	No. 6 Oil	83.7	0.5% Moisture Carryover
68,000	620	Sat.	350	No. 6 Oil	80.9	1 ppm Solids Carryover

FOSTER WHEELER

NEW YORK • LONDON • PARIS • ST. CATHARINES, ONT.

How Will He Rate in '78?

By GUY B. ARTHUR, JR.
President
Guy B. Arthur & Associates, Inc.
Toccoa, Georgia

Long experience with Southern industries enables the author to discuss right and wrong methods from actual observation of men at work.

How to Hire a Man

JOE MAY be a vice president in 1978 or a real problem child by then. Joe is the fellow you hire today. You will pay him over $100,000 during those twenty years. In addition, you will pay for his unemployment insurance, social security, workmen's compensation, group insurance, hospitalization, pension program, etc. These will amount to over $25,000 or a total investment of at least $125,000.

Suppose you decided to purchase a new piece of equipment for $125,000. You would make a thorough engineering study to be sure you were making a good investment, i.e., that the new equipment would pay off in terms of lower costs, better quality or improved service. Once you bought it you would put it on a solid foundation and under a good roof. Then you would break it in slowly under the close supervision of engineers and mechanics. Following that, you would establish a preventive maintenance schedule that would include regular oilings and inspections.

The same careful engineering approach can and should be followed when you employ a new man. Keep in mind that you are about to invest the same amount of money as you would for a $125,000 piece of equipment. One difference is that you have to make payments for the man over a longer period of time than you do for the equipment. As a result, increasing taxes and inflation will materially increase the costs of our investments in men as time goes on.

What Do You Want?

The principles of making an investment in a man or a new piece of expensive equipment are essentially the same. First of all, you must know what you want. A brilliant young acquaintance of mine in Alabama applied for a job with a well known corporation. He was interviewed by three people. Each of these told him what he would be expected to do. All three stories were different. He went to work for another firm where they knew what they wanted. He is now a junior executive.

Another friend was employed by a superintendent. He was then assigned to work under one of the foremen. However, the foreman assigned him to a job that he was not qualified to do. He quit but two years later he was made a supervisor in the next plant where he went to work.

What do you want the man to do? Is his future boss in agreement with you as to what the man is to do? Let us look at a very simple job like a janitor or porter. You say he is supposed to keep

the place clean. That is fine but here are some of the questions we should know the answers to before we hire a porter:

◆ Will he have to work on a ladder or hang out on a window sill to wash the panes?

◆ Will he work with acids or caustics?

◆ Will he have access to valuable company or employee property?

◆ Will he have to operate any mechanical or electrical equipment?

◆ What hazards will be involved in his work?

◆ What hours will he work?

◆ Will he have any contact with customers or the public in our behalf?

◆ What are his avenues of promotion, if any?

◆ For whom will he work?

◆ With which employees will he work?

You must know the answers to all such questions before you can intelligently invest money in a man that may be with you the next twenty years.

Before hiring a man for any job you should write out his duties, responsibilities, authority (if any), physical requirements, the name of the person he will report to, the names of the people he will work with, and the line of his advancement. Many an employee has not been effective because he (or she) was not placed with other people he could work with. Insofar as possible try to find a new employee who will enjoy working with those people he will be assigned to work with. Remember, one troublemaker can lower the effectiveness of a whole group.

NO MORE pig in a poke

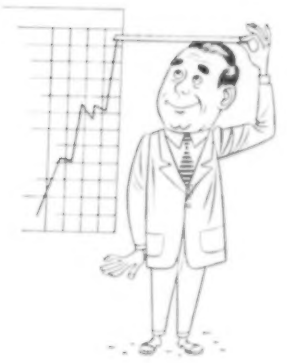
Now that you know what you want, you can list those facts you want to know about the applicants for the job. Even when you use an application blank, there is special information you should have from the applicants for each particular job. No standard application blank (of reasonable length) can possibly ask all the questions you should have answers to before you fill a given job.

For example, what question would you ask a welder to determine whether or not he had the kind of experience you need. Would you employ a beater foreman who did not know what kinds of furnishes the plant was using? Many times one or two key questions will eliminate most of the unqualified candidates. If you determine in advance the special questions you will ask the applicants, you will save a lot of your time and their time.

How Will He Be Trained?

Most thorough studies of the reasons for terminations indicate that a lot of turnover results from lack of training. One of the best salesmen in this country tried three different sales jobs and failed. On his fourth try he went to work for a company that believed in training. Once someone taught him how to sell, he became an outstanding salesman. In his first year with this firm he increased the business from his territory by almost 40%. He became a district sales manager before he was thirty years old. The controller for a company in Dallas, Texas was fired from his first job because no one showed him what to do.

Many companies turn a newly hired employee over to an old hand to show the beginner the ropes. They fail to realize that the quicker the new man can do the job properly the sooner they start getting good quality and standard costs. Only training can bring this about. Because of this the good manager knows the answers to the



following questions before he hires a man:

1. What general information will he be given? Who will give it? When will it be given?
2. What job training will he be given? Who will give it? When will it be given?
3. Who will check up to be sure he has been properly trained? Who will do this? When will it be done?

This sounds so elementary that it seems unimportant. Still, unless such advance planning is done you do the man and your company a great injustice. Remember, inadequate training is responsible for high costs, poor quality, needless waste, high turnover, low morale, and all that goes with that — absenteeism, grievances, accidents, soldiering, etc.

How To Get Applicants

Many companies get all the applicants they want from among the friends of their employees. This is probably the best possible source since it brings into the organization people with whom the present employees can and will get along. The new employee behaves because he will discredit a friend who recommended him if he does not. Present employees usually have a better idea of the kind of people who will succeed at the work than anyone else. Of course, management must do a good job of personnel administration in order to get such help from their employees.

Friends of yours will be glad to suggest the names of people who

might do a good job for you. These should be checked quite carefully in view of the human tendency to help a person (by recommending him) even though he is not qualified or may have some serious shortcomings.

For example, three men recommended a man for a key job without ever mentioning that he had been a dope addict. None of them wanted to hurt him. They all wanted to see him get another chance. Still this man went berserk within a few months after he was employed.

Other common sources for applicants are those who apply at your door, those referred by the United States Employment Service, those sent you by private employment agencies, and those who respond to your advertisements in the newspapers, radio, trade papers, and professional journals. College graduates can be found through the Placement Managers at the Universities, professional society groups, and fraternities. Specialized and managerial applicants can be located through industry association managers, equipment sales representatives, contractors you employ, consulting engineers, and management consultants who specialize in making searches for such talent.

Screening Applicants

The first step is to weed out all those applicants who do not meet the standards you have established for the job. Hours can be saved by carefully reviewing application blanks or resumes before holding any interviews. If the information you need is not complete on the application blank or resume, it is best to request said information before proceeding. It is time consuming and pointless to talk to people who are not qualified or who do not meet your standards. At the same time, it is proper to thank each applicant either in person or by letter.

Screening interviews should then be scheduled for those applicants who are qualified according to their application blanks or resumes. Many managers have one of their subordinates make the screening interview. Such interviews are for the purpose of eliminating those applicants whose record looks all right but who do not meet your standards when interviewed.

Those who pass your screening interviews should then be tested, if you use psychological tests as a tool to help you select employees. Such tests are invaluable in determining intelligence, abilities and interests. They should only be interpreted by people who are qualified to do so.

Many Universities have men in their psychology departments who can do this testing. The United States Employment Service have trained people in some of their offices who can be helpful in this regard. The thing to remember is that tests are only another helpful tool, and they should not be relied upon solely in selecting applicants.

One sales manager almost ruined his business and reputation when he began using tests as his only criteria for hiring salesmen. The test scores of the first few men he employed with the help of tests fitted exactly with his judgment of these men. He was so impressed that he ceased holding his long searching interviews and started relying almost entirely on test results. The next thing he knew sales were dropping off in several areas. He went out in the field and learned that his test tube salesmen were making old customers very unhappy. He still uses tests but only as a check on his searching interviews and thorough checks on each applicant.

If a man gets past your screening interview and gets acceptable grades on any tests you use, it is time to check his or her references. Some companies do this over a telephone. Others write letters or use forms for this purpose. Either of these methods is better than not making any check of an applicant's references. It must be remembered however that few references will volunteer any information which will hurt their friend — the applicant.

The ideal way to check references is to sit down across the table from each reference and discuss your applicant. Only in this way are you able to explore every negative reaction that shows up in evasive answers and facial expressions. One company completely staffed a new plant with people whose references had been personally interviewed. Subsequent union elections held at this plant and continued employee surveys showed that these carefully selected employees constituted an excellent organization.

The dope addict mentioned earlier would not have been employed if his references had been interviewed rather than talked to over the telephone. At least one of his three references would have given a clue to his past bad habits. Never hire a key person without having his references checked in personal interviews.

Final Interviews

The person who should tell an applicant that he (or she) is hired is the one to whom the applicant will report. The boss should also tell the new employee about his starting rate of pay. This is necessary if the employee is to have proper respect for his boss. Furthermore, the boss should be satisfied that the employee will be able to do the job and fit in with the other employees. The new employee should also be satisfied that he will be able to work for his new boss. For all these reasons, the final interview should be between the applicant and his (or her) future boss.

In most companies, management does not give the sole responsibility for hiring to supervisors. They make sure that supervisors have only acceptable candidates available to select from. They do this by personally interviewing the qualified applicants or by having someone else in the organization do this. Since only acceptable applicants are approved for possible hiring, it is then possible to allow the supervisor to

make a final selection which is satisfactory to him. This procedure assures that two or three members of management interview each qualified applicant before he is employed. The judgment of two or three people is always better than one when it comes to evaluating applicants.

More and more companies are making a practice of also interviewing a man's wife if the man is to fill a key position in the organization. This is especially important if the position is in a small community.

One man who had an excellent record as a controller in two large cities did not succeed in a small southern community because of his wife. She would not fit her behavior into the pattern of the community and was critical of everyone and everything. She became such an irritant that management had to terminate the man's services. This was unfortunate since the company needed this man's experience and because the company was criticized for bringing this woman to their town. Such important positions should only be filled after a thorough investigation has been made of the man and his wife, preferably in their own home.

Understanding

The hiring procedure is not complete until the new employee understands what will be expected of him, what hours he will work, to whom he will report, when and how he will get paid, the policies of his new employer, and all other matters which have a bearing on his new relationship.

Understanding is the essential ingredient for a successful employment relationship. All of the above proven methods of selecting employees will be in vain if there is not understanding between the new employee and his employer. In one company it is the responsibility of the new boss to bring about complete understanding before a new man goes to work. In some other companies this responsibility is divided between the owner and the man's boss. In still others it is divided between the personnel department and the new boss. Understanding between the parties, at the outset of their relationship, is the most important element of the whole hiring procedure.

This article started out talking about hiring a janitor and continued on to hiring an executive. The methods outlined are applicable whether you are hiring janitors, shop workers, office personnel, salesmen, supervisors, or managers. These methods have been proven effective in small automobile dealerships employing twenty people and in corporations with thousands of employees. Their use cuts down training costs, waste, turnover, and the terrific problems created when you hire unqualified people and keep them on the payroll over a period of time. Intelligent hiring saves far more money and time than it costs.

Cast Aluminum Bus Bar — West Virginia

A NEW TYPE of cast aluminum bar developed by Kaiser Aluminum & Chemical Corporation is being used as bus bar at the new reduction plant in Ravenswood, West Virginia.

The company installed 3-million pounds of the new aluminum bar, called "K-Slab," for cathode and anode bus bar on the first two potlines at the Ravenswood plant, with substantial savings resulting.

The Ravenswood bus system fabricated from K-Slab, which constitutes the largest electrical application of cast aluminum bar to date, is the result of more than two years of research and development in continuous strip casting methods at Kaiser Aluminum's Chalmette, Louisiana, reduction plant.

Aluminum collector straps are welded to cast aluminum bus bar being used at Kaiser's new Ravens, West Virginia, reduction plant.

ALL THAT GLITTERS IS GOLD in this maze of gold-plated taper pin connectors which are part of the transistorized "brain" being installed at the Sterlington Station near Monroe, La. The operator is checking the connectors on one of the digital computer printed circuit cards.

No Dials or Gauges

Transistorized Computer Monitors Louisiana Plant

THE FIRST transistorized general purpose digital computer, which will give an automatic record of operating conditions without the necessity of reading dials or recorders, is going "on-line" at the new 210,000 kw unit at Sterlington Steam Station of the Louisiana Power & Light Company. The power plant was designed and constructed by Ebasco Services Incorporated.

For the first time, a power plant control room will be devoid of most of the usual array of dials, gauges and recorders. Replacing them is a row of cabinets in which thousands of transistors and other equipment silently perform millions of mathematical operations without the heat or light of conventional vacuum tubes. This "solid state" construction is expected to provide a high degree of reliability and availability, making possible continuous, round-the-clock operation.

Developed and produced by the Daystrom Systems Division, the new Operational Information System handles 350 points at a rate of 5 points per second. Outputs are temperatures, flows, pressures, heat rates, and various electrical measurements.

The system not only performs all the mathematical computations on vital operating data being automatically observed and recorded, but supplies the necessary signals to control all elements of the automatic data collection equipment. Closer control of equipment, as well as completely accurate records for accounting and trouble-shooting are the chief advantages claimed for the system developed for Sterlington.

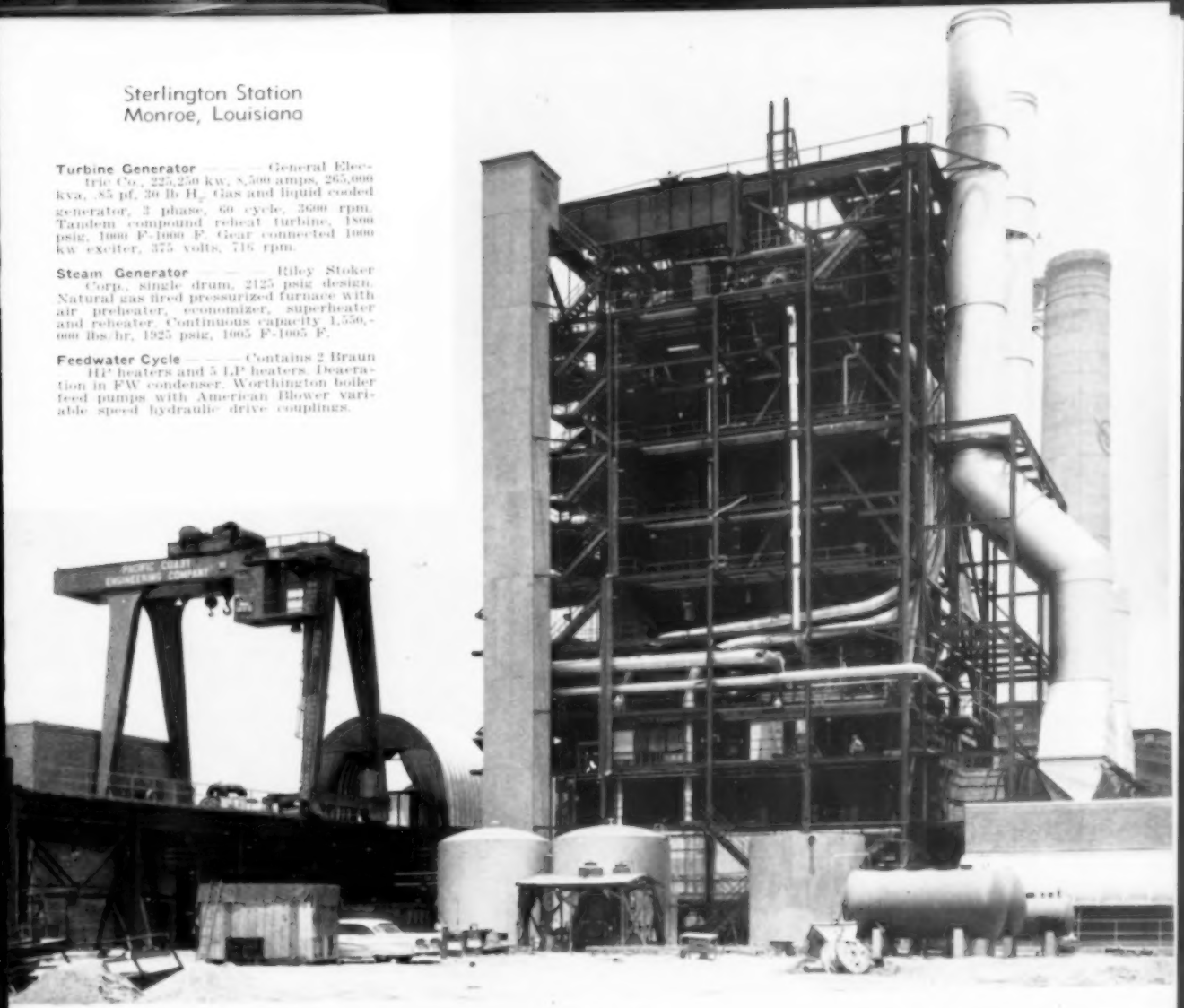
Should anything go wrong in the plant operation, records are obtainable immediately, enabling the operator to properly evaluate whether plant equipment can be safely left in service or may require substitution or shutdown — without having to rely on normal log sheet readings to locate the

Sterlington Station
Monroe, Louisiana

Turbine Generator ——— General Electric Co., 225,250 kw, 8,500 amps, 265,000 kva, .85 pf, 30 lb H_2 Gas and liquid cooled generator, 3 phase, 60 cycle, 3600 rpm. Tandem compound reheat turbine, 1800 psig, 1000 F-1000 F. Gear connected 1000 kw exciter, 375 volts, 715 rpm.

Steam Generator ——— Riley Stoker Corp., single drum, 2125 psig design. Natural gas fired pressurized furnace with air preheater, economizer, superheater and reheater. Continuous capacity 1,550,000 lbs/hr, 1925 psig, 1005 F-1005 F.

Feedwater Cycle ——— Contains 2 Braun HP heaters and 5 LP heaters. Deaeration in FW condenser. Worthington boiler feed pumps with American Blower variable speed hydraulic drive couplings.



View at left shows the console and high speed output punch and tape readers for the 350 point monitoring and alarm-scanning system. The instructions being typed below are automatically translated into electronic orders for the computer with split-second speed. The "printers" in the background tell what is happening at 350 points after the information is automatically processed.

source of the trouble. Completely accurate information on every phase of operation of the power plant, divorced from any possibility of human error, is the goal of the installation.

According to Louisiana Power and Light engineers, the Daystrom installation will automatically measure 250 temperature points, such as bearing and oil, boiler, steam, transformer, and other temperatures important to plant operation. Should any of these register higher or lower than a preset point, an alarm will sound, and the readings will be printed out on a separate unit indicating its location in the plant.

The unit will also print at regular time intervals 100 plant readings necessary for accounting and trouble-shooting records. At any time the operator desires, it will produce a written record of any of the measurements in the system.

The Computer

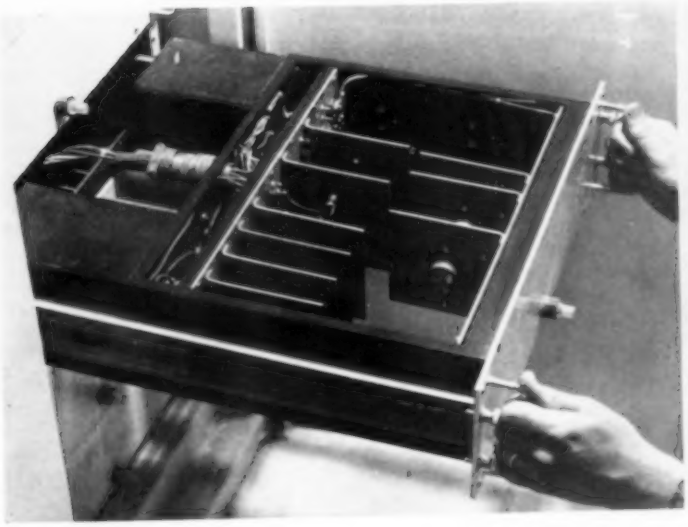
The heart of this new installation is the transistorized computer, utilizing a memory unit presently capable of storing 2,048 different pieces of information with provisions for increasing this storage to 16,384 pieces, and which is programmed to provide complete operating data for the safe operation of the plant.

While the use of computers in process systems is not new, previous installations have employed analog computers which do not offer the accuracy or flexibility of digital computers. The new system automatically converts analog information into digital form, that is, it assigns definite figures to the incoming variables, such as the voltage produced by a thermocouple. They are then fed into the computer, and all computations are performed digitally without loss of accuracy.

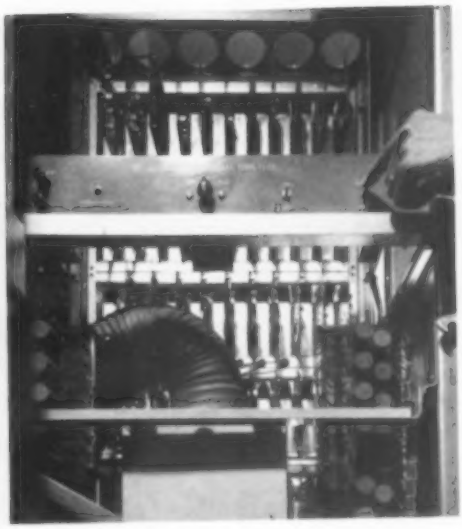
The computer is programmed to provide its own control of points to be scanned, and then examines each reading to see if it is within limits.

Engineers at Louisiana Power & Light stated that the equipment was not installed to save man power, but primarily to provide operating experience with the type of equipment that will eventually be used in the completely automatic power plant. Ultimately, the so-called continuous computer scanner, with automatic equipment supervised and controlled by the computer, may take over start-up, operation, and shutdown without any human supervision.

System inputs include kilowatts, amperes, volts, vars; cycle pressures, flows and temperatures; fuel gravity and heat content; equipment pressures and flows; and bearing and metal temperatures. Although transducers were not



Daystrom Systems' transistorized power supply, showing power transistors and heat sinks. All equipment is mounted in removable racks for easy access.



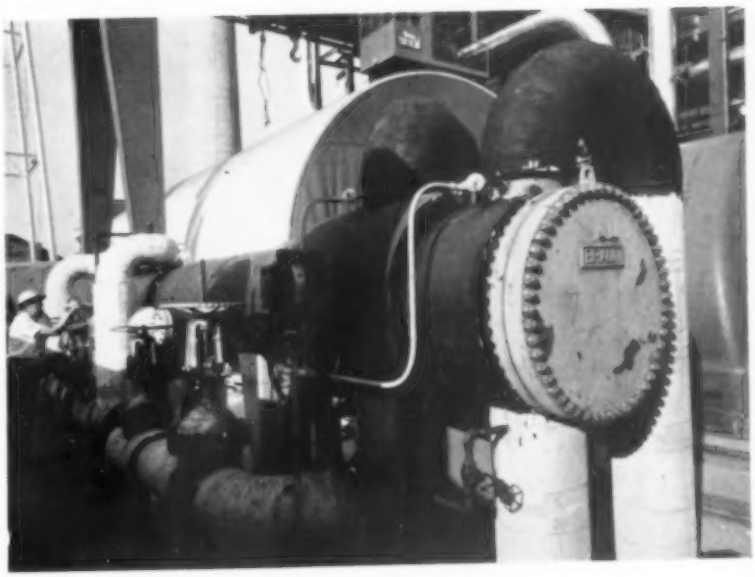
Detail of the 2,048 word memory system.

supplied with the system, it is engineered to accomodate various types of input signals including d-c millivolt signals, d-c milliampere signals, pulse-type digital signals, and thermohm temperature elements as well as providing external contact closures for lockout features of a Trouble Location Annunciator.

All the continuously scanned temperatures are either copper-constantan or chromel - alumel thermocouple inputs, with the logged variables having input signals of any of the previously mentioned types. Computations performed by the system include differential temperatures, self-changing alarm settings, corrected flows, integrations, averages and heat rates.

The Daystrom system is designed to be unaffected by high-energy a-c fields, a-c control pulses, and varying ground potentials. Similarly, since 24 hours a day continuous operation was a necessity, reliability at guaranteed accuracy was specified as 99% over a six-month period.

The majority of the circuitry is made up of a minimal number of different types of individually printed plug-in circuit cards, each separately tested before installation under conditions far in excess of operating conditions. Individual component failure is remote, as circuit components are all underrated, while bistable circuits are designed to operate reliably at more than twice the clock frequency of the computer. Individual gold-plated taper pins on each connecting wire produce a positive and reliable connection.



Above are just two of many thermocouples where measurements of temperature begin. The information is channeled to a completely solid-state monitoring and alarm scanning system.

Since the stability and noise level demands of the system could not be met by solid state equipment in the input switching of low-level signals, hermetically-sealed relays with mercury-wetted contacts and careful wiring techniques were used to cancel thermal emf's and transient noise.

The system is composed of four major elements: *the input section*, where input signals are terminated and selected; *the digital section*, where analog signals are converted to digital values after selection by the multiplexing relays; *the computer section* which furnishes the operational control of the entire system, as well as performing all mathematical functions such as scale factoring, linearizing, integrating, comparison with limits, etc.; and *the output section* where final logging, printing, and annunciation is performed.

Over and above the direct logging of measured data, some derived data such as "net heat rate" are logged. Since readings may be held in storage, several variables may be combined to obtain these derived data by programming their mathematical relationships into computer commands.

Megawatt-hour data are accumulated continously by individual digital registers that count pulses generated by the megawatt-hour meters. This accumulation is not interrupted either by the scanning or by the logging cycle. During the logging cycle the content of each register is transferred to the computer where the previous reading is subtracted to obtain megawatt-hour's for the station log.

At Memphis, Tennessee . . .

Speed, Safety & Flexibility Inside & Outside the Plant

RAILROAD equipment and custom forgings are produced by the Conley Frog and Switch Company, Memphis, Tenn. Three pieces of Hyster materials handling equipment are offering many production benefits.

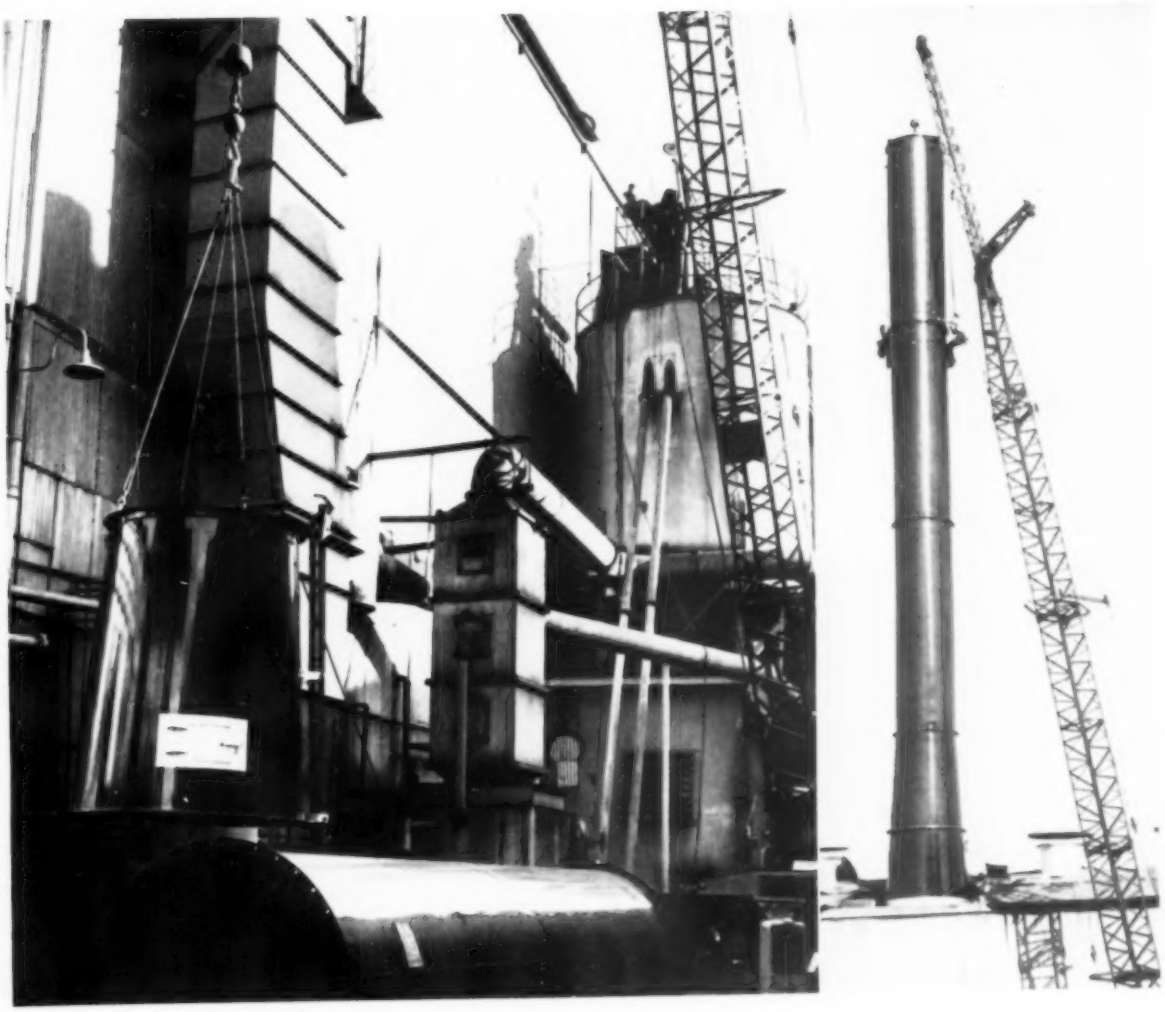
Overhead cranes were used inside the plant for handling products through manufacturing processes. The system was inflexible and had many limitations. The company loaded and unloaded steel rails in its yard operation by hand. Because these rails were handled by hand, they had to be shipped and delivered on flat cars for which the company was charged premium shipping rates.

Equipment Used — Two Hyster 80s were purchased. One truck serves the materials handling requirements of the forge shop. It handles skip loads of cut steel, forgings and scrap and moves finished products to the frog shop or shipping department. The second truck is assigned to the frog shop to move sections of rail and subassembly parts from one operation to another.

The Karry Krane is used in the yard for unloading and loading gondola cars of steel rail. The crane is also used to stack the rails in the yard and to deliver steel requirements to the shops.

Results — With the use of the Hyster equipment, the production capacity has increased two-fold without any increase in facilities or labor. Using the two lift trucks in the various shops has resulted in a handling system that is faster, safer and far more flexible than was possible with the overhead crane.

In the yard operations, the improvements brought about by mechanical handling of steel rails over hand methods have been dramatic. Whereas under the hand method rails were skidded off flat cars by hand carried by five men to the shops, the Karry Krane carries three to six rails at a time in an operation that requires only two men. Also, the company is able to avoid the premium pay for flat cars as all deliveries are made with gondolas.



Savannah, Georgia . . .

SMOKESTACKS . . . glass-fused-to metal

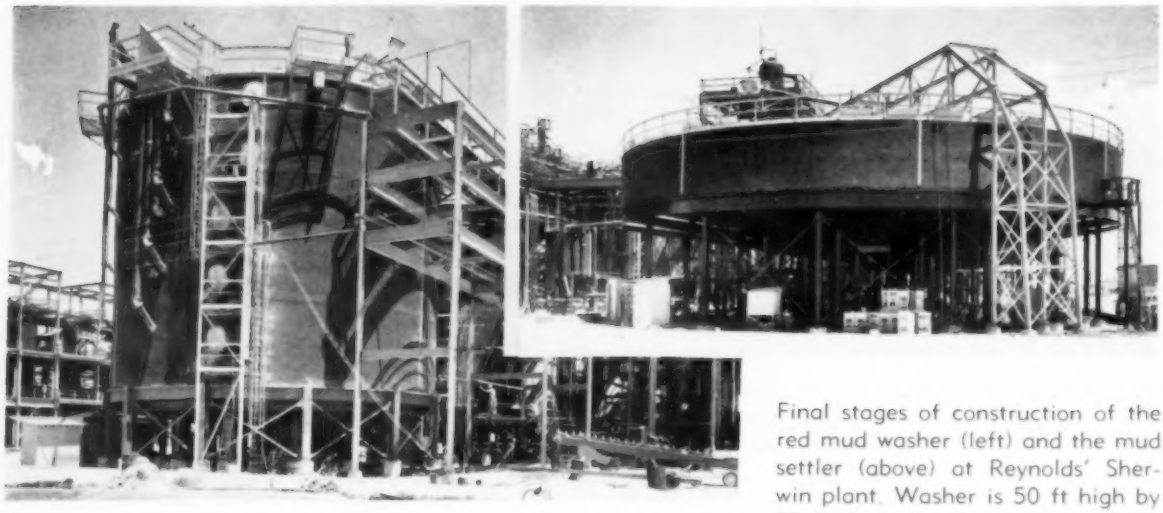
THIS NEW Permaglas smokestack, nearing final erection at the Savannah Sugar Refining Company's heating plant will eliminate many maintenance, repair and replacement problems. The Permaglas smokestack (an A. O. Smith Corporation development) utilizes glass-fused-to metal to successfully combat corrosion problems.

Manufacturer emphasizes that the life span of the Permaglas stack is from three to five times that of a conventional steel stack in similar service. Increased life is result of the glass bonded to steel. Glass can't rust so there is a bare minimum of maintenance.

Basic stack section (typical section is 20 ft long, with diameter to 8 ft in 6 in. increments only) is made up of ¼" steel. Each end of each section has flanges which are rolled angles welded to the shell prior to firing. Each panel or section is glass coated with two coats of acid-resistant glass. Both exterior and interior are coated.

For erection, these sections are bolted together, using asbestos spacer washers and mastic type gasket material with cadmium plated bolts. Sections can be bolted together on the ground and placed by jury boom, or parts of the stack made up at a time, and these sections raised into position.

Use of the glass-fused-to metal stacks eliminates many of the maintenance problems associated with steel and brick or gunned concrete type stacks. Foundation requirements for heavy stacks often present problems in respect to filled-in land and where future extensions in height may be contemplated. The light weight of the glass coating, which is applied inside and out, compared with conventional linings (inside only) is 5 ounce/sq ft against 50 lb/sq ft — with the protective values of the glass far superior in spite of its insignificant weight.



Final stages of construction of the red mud washer (left) and the mud settler (above) at Reynolds' Sherwin plant. Washer is 50 ft high by 55 ft diameter and settler is 9 by 90 ft. Both are insulated with 1½-in. thick calcium silicate blocks and finished with asphaltic emulsion weatherproofing over wire mesh.

Texas Climate Permits

Outdoor Design for Aluminum Plant

INSULATION

EXPANSION of the Sherwin alumina plant of Reynolds Metals Company near Corpus Christi, Texas, will add a third producing unit and bring annual production to approximately 550,000 tons per year. The first alumina plant built in Texas, it is adjacent to the San Patricia reduction plant forming a completely integrated bauxite-to-aluminum operation.

Taking advantage of the mild temperatures of the area, most of the equipment is outdoors and exposed to the weather. Despite the climate, insulation of the equipment and piping was a critical factor. Conservation of the natural gas fuel, control of process temperatures, personnel protection, and protection of the insulation from rain were all matters given special significance by the outdoor construction. Average wind velocities in excess of 10 mph are a heat loss factor.

The new unit required additional steam and power. The original central steam plant contained two B&W boilers of 225,000 lb/hr capacity, one producing 875 psig, 825 F steam, and the other saturated steam at 315 psig. To provide additional capacity for the new alumina unit, two 200,000 lb/hr boilers were added producing steam at the same pressure and temperature.

Large quantities of steam and power are required for alumina production in the Bayer process used here. Some 25 million cubic feet of natural gas is consumed daily for boiler fuel and calcining kilns. About three million gallons of water are brought in daily from Corpus Christi through a company-built 24-in., 28-mile pipe line. Steam from the high pressure boiler drives turbo-generators producing 320,000 kw of electricity daily.

Bauxite ore is brought from Jamaica by ship and fed into rod mills and wet ground with caustic soda. The resulting slurry goes into a battery of steam-heated pressure vessels or digesters where the alumina content of the bauxite is dissolved leaving undissolved impurities in the form of red mud. These impurities are separated in a red mud settling tank and the liquor drawn off to a battery of 75 large precipitating tanks. Aluminum hydrate is precipitated out in a two- to three-day process.

Large particles of this intermediate product are separated, washed, filtered and then put through rotary calcining kilns at 2,000 F where the heat drives off the combined water to produce pure alumina resembling granulated sugar. Smaller particles are reprocessed until they reach the size desired. The remaining liquor is evaporated to remove water acquired during the washing process and returned to the rod mills and digestors for reprocessing with fresh bauxite.

Insulation

In the new unit, many tanks and vessels of varying types and sizes and operating in a tempera-

RIGHT — Steam lines between power and alumina process areas; left foreground, 24-in. extraction steam lines insulated with 2-in. thick calcium silicate and finished with aluminum jackets and asphalt emulsion on bends; background 8- and 10-in. high pressure 900 F steam lines, with 3½-in. thick calcium silicate, asphalt-saturated, asbestos felt jacket still to be applied.

CENTER — Outdoor power plant. From top, deaerator heaters, storage tanks, piping and auxiliary equipment. Heaters and tanks (250 F) are insulated with 2 in. calcium silicate blocks finished with insulating cement, wire mesh and plastic weatherproofing. Piping insulation is covered with aluminum jackets.

LOWER — High pressure steam lines and evaporating condenser in power area illustrate outdoor construction. Calcium silicate pipe insulation and block is 2½-in. thick for 700 to 750 F temperatures; finish is aluminum sheeting with asphalt emulsion on bends.

ture range from 210 F to 390 F are insulated. These include six vertical digesters 10 ft in diameter and 30 ft high at 390 F and insulated with 2-in. thick calcium silicate blocks. Six flash tanks ranging from 6 to 13 ft in diameter and 25 ft high operate at temperatures from 290 F to 390 F and have calcium silicate block insulation in 1½-in. thickness for the lower temperature and 2-in. for all higher temperatures.

The same insulation in 1½-in. thick blocks was used on the sides of the largest vessels, the 9-ft deep by 90-ft red mud settler at 230 F, and the 55-ft deep by 50-ft red mud washer at 210 F.

Other process equipment requiring insulation includes eight of the ten digester pre-heaters, two filter feed tanks, clear and cloudy filtrate tanks, two electric pre-

cipitators, two multiclones, 10 Kelly filters, and other units.

In general, calcium silicate insulating blocks were applied first with adhesive. Insulation joints are staggered by using alternating half-length and full length blocks in the first course starting at the end of horizontal vessels or the bottom of vertical vessels. These are further secured by bands on 9-in. centers.

Where double layer insulation is used, the inner layer bands are on 12-in. centers. For vessel diameters up to 10 ft, the calcium silicate blocks are 6 in. wide by 36 in. long; on larger vessels the blocks are 12 in. x 36 in. The 6-in. wide blocks were used where required on vessel heads and bottoms and secured with 14 gage wire to welded lugs or studs.

Where circumferential angle rings were provided on vertical vessels for insulation support, an expansion space of approximately 1-in. was left between the ring and insulation blocks below. This space was packed with fibrous insulation and eventually covered with a sliding collar of weathertight construction.

Insulation blocks were covered with a ¼-in. layer of quick-setting insulation cement trowelled smooth. Galvanized hex mesh, 19 gage by 1-in., was stretched tightly over the cement and laced in place.

Final weather-proof finish was provided with a ¼-in. coat (⅛-in. when dry) of an asphaltic emulsion containing asbestos fiber. Terminal points of the insulation were sealed and flashed. On certain equipment indoors, the weatherproofing was omitted and the finish consisted of a second coat of hard-finish insulating cement.

Insulation of the original boilers is typical of the thoroughness of all insulation work at the plant and similar to that on the new, smaller boiler units. On the front wall of the furnace, diatomaceous silica block was applied to a total thickness of 7 inches over 4½-in. thick firebrick. Rear and side walls of the furnace used 6-in. thick diatomaceous silica insulation over 2½-in. firebrick. Boiler wall insulation ranged from 6-in. thick block on the rear wall to 3½-in. on the front, all over 2½-in. firebrick.

PIPE INSULATION THICKNESS IN INCHES

Pipe Size	To 480 F	To 780 F	To 980 F
½	1	1½	2
¾	1	1½	2
1	1	1½	2
1½	1	2	2½*
2	1½	2	2½*
3	1½	2½*	3*
4	1½	2½*	3*
6	1½	2½*	3*
8	1½	2½*	3½*
10	1½	2½*	3½*
12-24	1½	3*	3½*

* Indicates double layer construction

Supply tubes, air duct, and I.D. fan and flue were all insulated with 85% Magnesia blocks ranging from 1-in. to 2½-in. thickness. The gas flue has an inner layer of 1½-in. thick calcium silicate block and an outer layer of 2-in. thick 85% Magnesia block.

Calcium silicate sectional or segmental pipe insulation was used on all hot lines in the power house and process areas. Double layer insulation with staggered joint construction was used on all lines of 3-in. O.D. and larger operating from 480 F to 780 F, and on 2-in. O.D. and larger lines from 780 F to 980 F. Pipe insulation thicknesses are shown in Table I.

Insulation on piping through 16-in. was secured with galvanized iron wire, and on larger piping with galvanized metal bands, ½-in. by .02-in. Both wires and bands were applied four to each 3-ft insulation section.

In the power house area, steam line insulation was finished with Reynolds .020-in. by 3S half-hard, felt-lined, mill finish flat aluminum. This was applied with a 3-in. lap "away from the weather" and secured with aluminum bands on 12-in. centers. Aluminum jackets on vertical lines were supported by two "Z" clips per section of jacket. Bends and fittings were finished with a weatherproof asphaltic emulsion. Where insulation was beveled short of uninsulated fittings in this area, the terminus ends were sealed with Alumaseal.

In the process area, pipe insulation on straight runs was finished with asphalt saturated roofing felt with bends and fittings weather-protected with asphaltic emulsion applied over hex mesh.

Pipes and ducts which did not require insulation for heat conservation or process temperature control but which were 140 F or more and within three feet of a working space were insulated to the extent necessary for personnel protection.

RotoGrate Stoker
Gulf States Paper Co.

AMPLIFYING our article on the Gulf States Paper Company's power plant in SPI for June (p 40-44), Detroit Stoker Company has sent us the following information:

"Both bark and coal are burned by a Detroit RotoGrate Stoker with conventional spreader feeders for coal and the new Detroit air swept refuse distributor spouts (one for each grate section) in the front wall of the furnace for feeding bark. Coal and bark may be burned either in combination or separately.

"The RotoGrate Stoker is not a chain grate with a spreader feeder. A chain grate is a series of closely spaced chains which move *away* from the stoker front. The RotoGrate employs reverse firing . . . has *forward* moving high resistance metering type grates. Design concept and combustion characteristics are much different from those of a chain grate."

North Carolina Plant Solves Corrosion Problem

EVAPORATOR MATERIALS RESIST ACID ATTACK

WATER is a valuable commodity in many manufacturing processes, but in some cases where it accumulates in and dilutes a processing liquid it may be a decidedly objectionable hindrance, and some economical means must be found to remove the diluting water.

This problem — a common one to synthetic fiber producers — was solved at the American Enka Corporation rayon plant in Enka, N. C., by installing five Buflovak single-effect vacuum evaporators. Each of the units, which consists of a heater and separator, is capable of evaporating 14,000 pounds of water an hour from the rayon spinning bath solution.

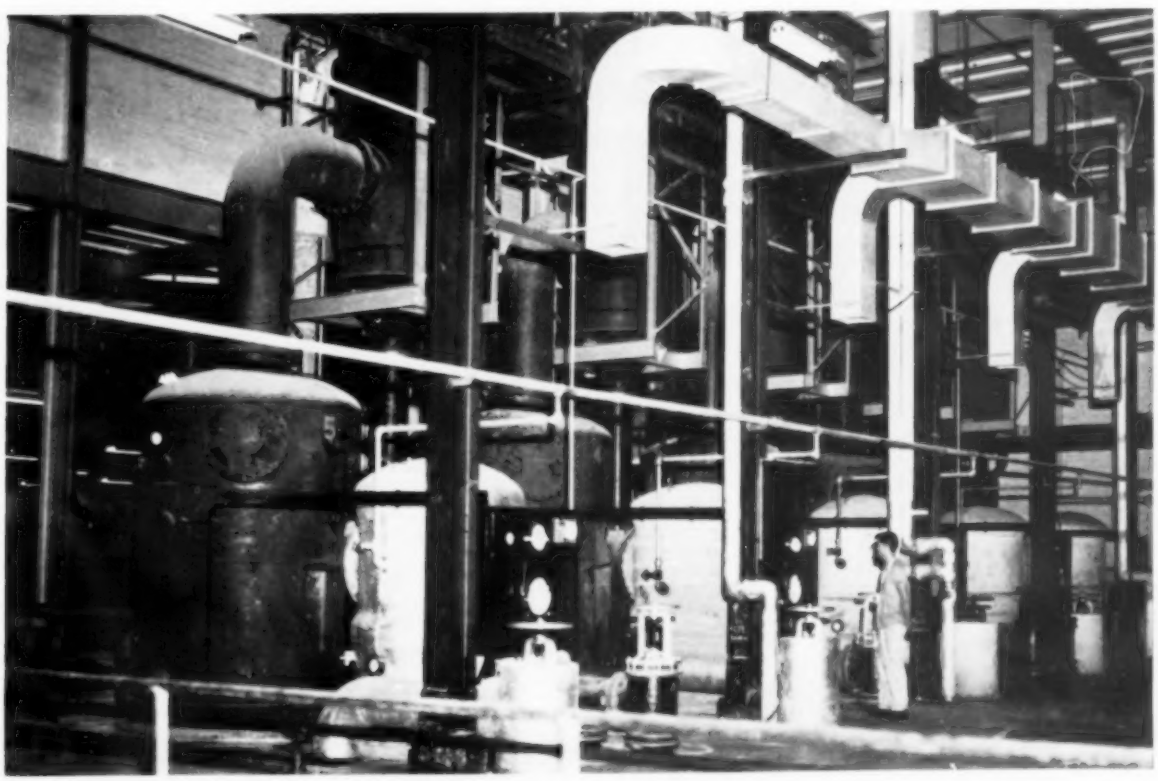
Because of the highly acidic character of the liquor, the manufacturer of the evaporators had to use special materials of construction to minimize corrosion. The heater section has rubber lined liquor and vapor chests, and Karbate graphite tubes. The tubes are cemented to flexible gaskets in the tube sheets. Tube sheets in four of the units are of lead, and in the other they are of Haveg, a resin impregnated asbestos.

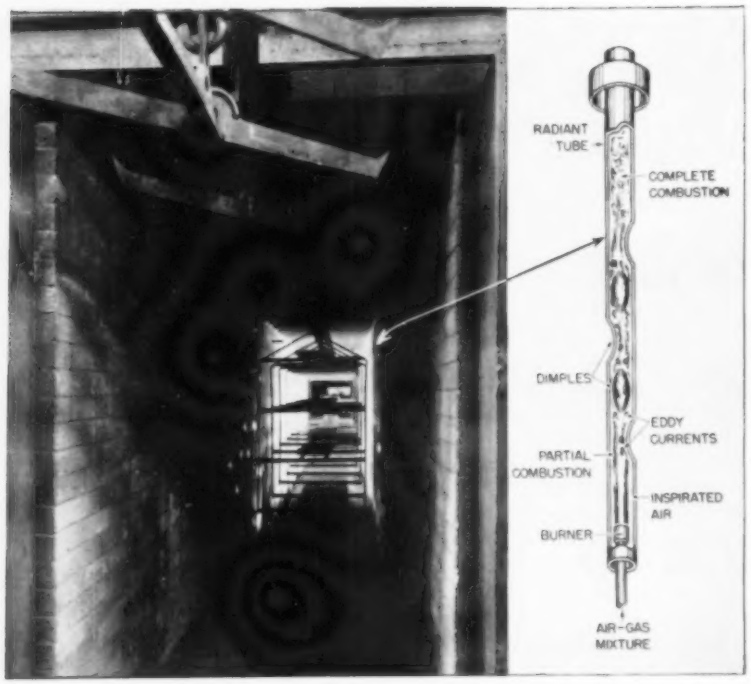
The vapor separator shell is rubber lined. The steel envelope of the heater proper, which surrounds the heat transfer tubes and forms the heating-steam supply chest, does not require protection against corrosion.

Flow to each heater is controlled by gravity, the heated liquor and vapor passing over into the separator where the vapor is drawn off to a barometric condenser and discharged. The revitalized liquor then returns to the spinning bath system. Removal of the water is a continuous operation and the rate is automatically regulated to maintain a predetermined acidity in the bath liquor.

During two years of service, maintenance requirements have been practically nil, and operation has been highly satisfactory for such a corrosive application.

These vacuum evaporators are reclaiming spent rayon spinning liquor for the American Enka Corporation by removing the excess water. They were designed and fabricated by the Buflovak Equipment Division, Blaw-Knox Company.





FURNACE INTERIOR showing some of the 64 vertical Inconel nickel-chromium alloy gas-fired tubes on the side walls. Each tube has 80,000-Btu rating.

Furnace Outage Reduced

DOWN TIME has been drastically cut in the furnace operation of Chambers Manufacturing Corporation, Oxford, Mississippi. This has been accomplished by the use of Inconel radiant tubes in the enameling furnace, according to Paul Davis, plant production manager. The furnace has been operated between 2,000 and 2,500 hr without tube replacement in a one-year period. The original Inconel tubes are still in service and are in good condition in spite of their high operating temperature of 1,400 to 1,520 F.

Chambers Manufacturing Corporation is one of America's oldest and best known makers of gas and electric ranges, built-in ovens and cooking tops. Before moving to Oxford, the firm had used muffle type furnaces for porcelain enameling at its Shelbyville, Indiana plant. These furnaces were of brick construction and could not be moved the 600 miles to the new plant site even if desirable.

The Chambers officials decided to select a more modern and efficient replacement — a vertical radiant tube gas-fired furnace having 64 Inconel radiant tubes. Natural gas is used as fuel. Inconel alloy is a nickel-chromium high temperature alloy, produced by International Nickel.

Furnace Design

The furnace was designed by the Lindberg Engineering Co. and is capable of operating continuously at temperatures up to 2,000 F. It is the first furnace of its type in Mississippi and one of the first of its design used for such vitreous enameled products.

The furnace is designed so that the radiant tubes can be easily and quickly replaced by lifting them out from the top. But the long life of the Inconel tubes makes the ease of replacement a secondary feature, according to Mr. Davis.

Each of the 64 tubes in the Chambers furnace has a rating of 80,000 Btu. The furnace has a rated continuous production capacity of 4,600 lb per hr of ware, tooling and enamel. Working width of the furnace is 36 in. and the working height 60 in. Thus it can accommodate a 3 by 5-ft piece for enameling.

The furnace is 62 ft-1 in. in overall length. It has a 9-ft 4-in. preheat zone, a 35-ft 4½-in. firing zone and an 18-ft 6½-in. annealing section. It is operated from 1,400 to 1,520 F, 8 hr a day, 40 hr a week. There are five zones of control in the firing section.

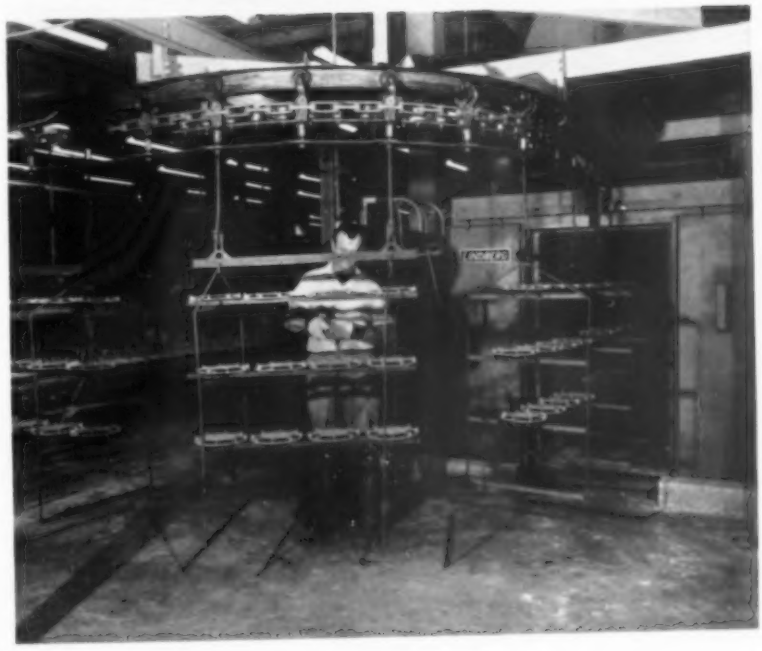
Mr. Davis reports:

"Continuous operation gives us a very close temperature control and time exposure to heat by varying the speed of the conveyer — important to enameling. It's an extremely flexible furnace from an operating standpoint because it can be idled over night or over the week end, if desired, or can be shut down completely without damage to the furnace. The operation appears very economical — much more so than for the old furnace.

"We idle the furnace overnight, with temperature from 800 to 1,000 F. Over the week end, we set the temperature back to 800 F. If we should be 'down' for a considerable time for work on the conveyor line or for some other reason we could shut the furnace off entirely without damaging it. We cut down the heat gradually and then build it up gradually when resuming

FURNACE EXTERIOR at Chambers Mfg. Corp. plant, Oxford, Miss. It is 62 ft long and has five control zones.

OVERHEAD VIEW of production line. Note the relatively large pieces that go through furnace for enameling.



CONVEYOR LINE leading into furnace. It has a rated continuous production capacity of 4,600 lb per hr of ware, tooling and enamel.

production. But normally, if we are out of production for two or three days, as in the case of a long holiday week end, we keep the heat up. It's more economical that way."

The Chambers Manufacturing Corporation plant enamels — and runs through the furnace — all interior parts of ranges, built-in ovens and cooking tops subject to heat or contact with foodstuffs. This includes the oven liner, well liner and broiler, as well as the finish coat for all exterior panels of ranges, ovens and cooking tops, in white or one of five colors.

The Oxford plant is Chambers' only manufacturing division. The sales office is a subsidiary, Chambers Ranges, Inc., and is in Chicago. The company was out of production for a relatively short period — 60 to 90 days — during its move from Indiana to Mississippi. The move was a gradual process.

A training school was started at Oxford and the new plant actually was producing a finished product when the official moving in took place. During part of the moving period, fabrication of parts was scattered and assembly work was done elsewhere.

Barrett Division of Allied Chemical Corp. serves ten southeastern states.

Double Fire Protection for Alabama Plant

THE BIRMINGHAM, Alabama, plant of the Barrett Division of Allied Chemical Corp. is both a production and a warehouse center from which the company serves ten southeastern states with tar and roofing materials. Thus, the fire pumps carry a dual responsibility — protection of processing equipment and of the extensive storage facilities.

Manufacturing facilities are divided between the distillation plant from which are derived tars, oils and pitch and the roofing plant which produces shingles, roll roofings and saturated felts. Close to ten of the plant's 30 acres are taken up by storage facilities — open warehouses for roofer products and giant tanks for distillation products.

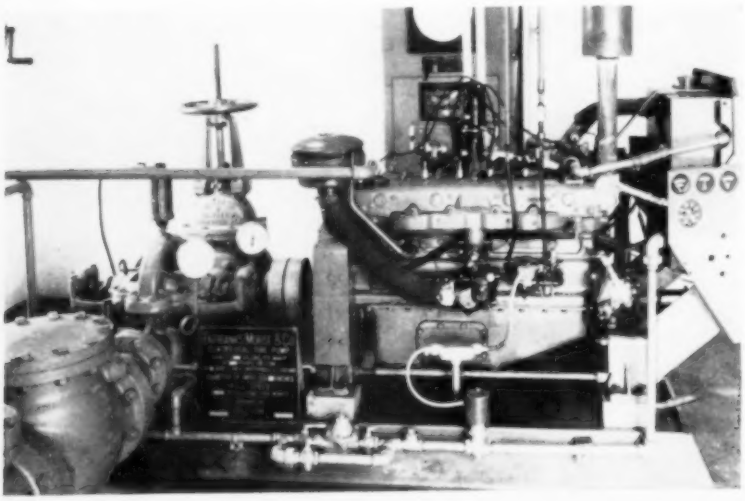
Automatic sprinklers are installed in plant and warehouses while yard hydrants are positioned close to outdoor manufacturing and storage facilities. All are fed from an underwriters standard loop grid system. Some of the present fire protection equipment dates back to 1914, and additions have been made as the plant grew.

Primary source of water for fire protection is a public industrial water system which feeds water to the plant's underground grid system through the city mains. Backing up this municipal water supply and serving as a secondary source are 300,000-gal. capacity storage reservoirs.

The industrial water is maintained at 100 lb pressure in the grid and sprinkler system by the small motor-driven, jockey pump which compensates for any minor seepage and attendant pressure drop. In the event of a large demand for water such as would occur if sprinklers were activated, a 1000 gpm engine-driven pump would start operating. This 5-in. Fairbanks-Morse centrifugal is the newest pump, and is now the basic unit in the protection system, supplying water at 100 psi. The Continental gasoline engine that drives the pump is started automatically, controlled by a King-Knight automatic control panel.

Should the primary water supply fail or prove insufficient to the demand, the pressure drop would bring an old 1000 gpm steam pump into operation. This unit feeds water into the grid and sprinkler system from the storage reservoirs.

In 44 years, the fire pump system has never failed.



This 1000 gpm engine-driven centrifugal is the basic unit in the plant's fire protection system.

WELBOND®
is the valve
for high pressures
for high temperatures

Welbond Valves are winning acceptance among modern steam plants for all high pressure, high temperature valve service.

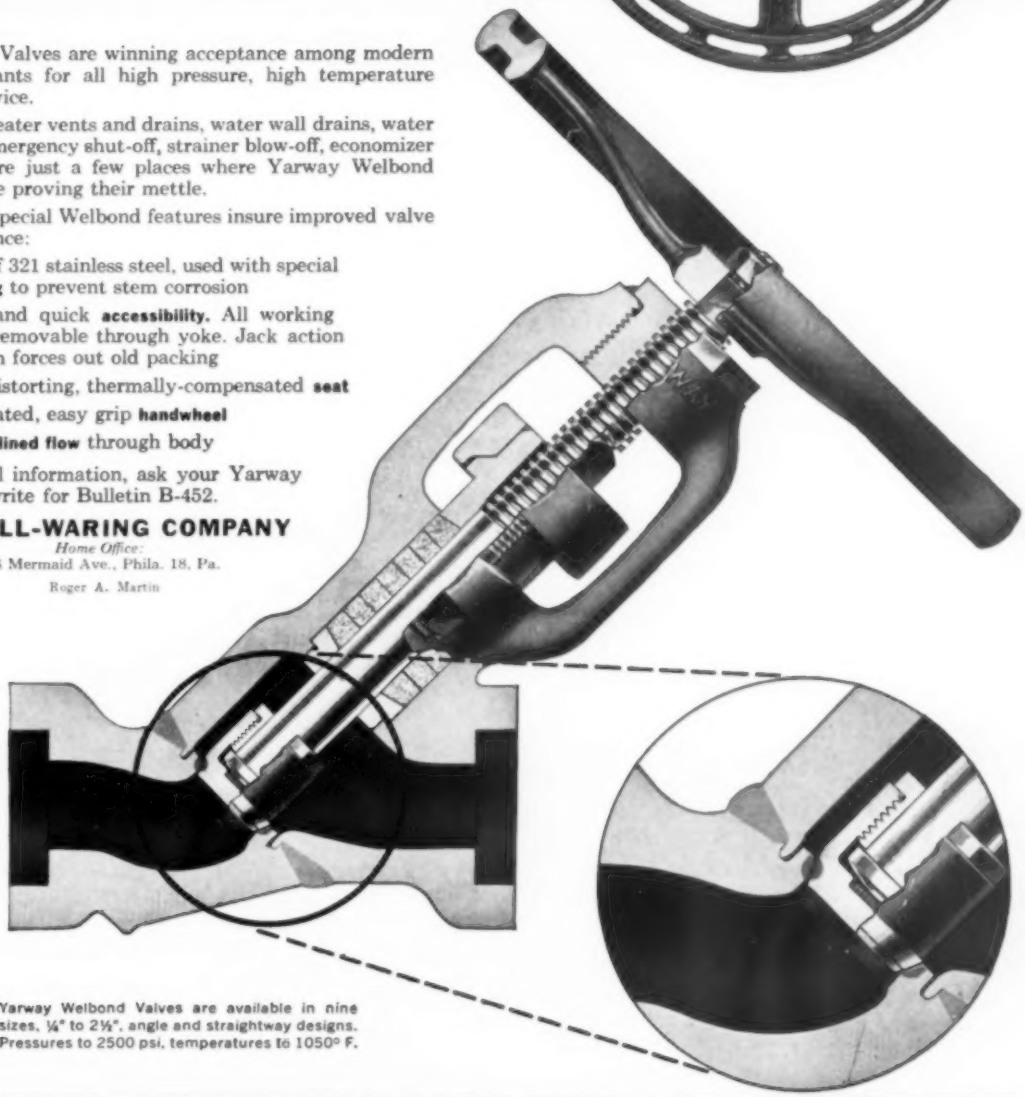
Superheater vents and drains, water wall drains, water column emergency shut-off, strainer blow-off, economizer drains—are just a few places where Yarway Welbond Valves are proving their mettle.

These special Welbond features insure improved valve performance:

- **Stem** of 321 stainless steel, used with special **packing** to prevent stem corrosion
- Easy and quick **accessibility.** All working parts removable through yoke. Jack action of stem forces out old packing
- Non-distorting, thermally-compensated **seat**
- Ventilated, easy grip **handwheel**
- **Streamlined flow** through body

For full information, ask your Yarway man or write for Bulletin B-452.

YARNALL-WARING COMPANY
Home Office:
116 Mermaid Ave., Phila. 18, Pa.
Roger A. Martin



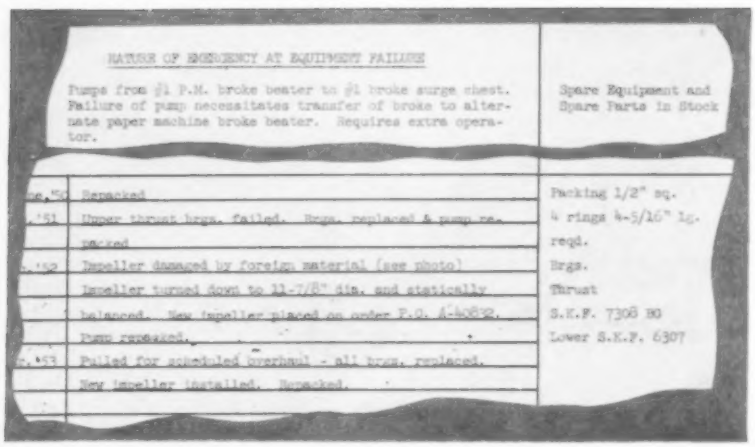
Yarway Welbond Valves are available in nine sizes, ¼" to 2½", angle and straightway designs. Pressures to 2500 psi, temperatures to 1050° F.

YARWAY® WELBOND

. . . a good way to specify high pressure/high temperature valves

The system must be simple and direct if it is to be effective . . .

Good Maintenance Records Pay



NATURE OF EMERGENCY AT EQUIPMENT FAILURE	Spare Equipment and Spare Parts in Stock
Pumps from #1 P.M. broke beater to #1 broke surge chest. Failure of pump necessitates transfer of broke to alternate paper machine broke beater. Requires extra operator.	
Repacked	Packing 1/2" sq.
Upper thrust brgs. failed. Brgs. replaced & pump re-packed	4 rings 4-5/16" lg. reqd.
Impeller damaged by foreign material (see photo)	Brgs.
Impeller turned down to 11-7/8" dia. and statically balanced. New impeller placed on order P.O. A-40832.	Thrust S.K.F. 7308 BG
Pump reassem.	Lower S.K.F. 6307
Failed for scheduled overhaul - all brgs. replaced.	
New impeller installed. Repacked.	

By R. F. BAER, former Maintenance Engineer, Paper & Groundwood Mills, Coosa River Newsprint Company, Coosa Pines, Ala.

GOOD maintenance records on equipment provide a working history of operating equipment and are an invaluable aid in accurately estimating a maintenance budget for the coming year.

Accurate records kept on a piece of equipment are most appreciated by equipment manufacturers, and are also valuable in settling insurance claims. But, most of all, a good maintenance record system provides a means whereby a maintenance engineer can move most effectively and efficiently in event of equipment breakdowns.

The record card (portion illustrated) is typical for a piece of operating equipment. The top caption, "Nature of Emergency at Equipment Failure," provides the engineer with a reliable and accurate story. The engineer is provided with specific information as to the function of the equipment. In this case, information is provided as to what tank this pump supplies and what part of the process is affected in event of its failure.

The right hand column, "Spare Equipment and Spare Parts in Stock," provides him a rapid means for further determining the seriousness of the emergency. But the history of past inspections and failures will probably prove most valuable in getting this piece of equipment back "on the line" in the shortest possible time.

Let's take a typical example: first, a phone call — the pump described on the Kardex file card has just failed. A glance at the "Nature of Emergency Failure" paragraph gives the engineer a short but nearly complete evaluation of the emergency. A look at the "Spare Equipment and Spare Parts in Stock" tells him approximately how long and how involved the repair may be. A call is made to the small stores warehouse to vertify the "Spare Parts in Stock" column. A quick glance at past equipment history may indicate a possible need for special machined parts or parts not regularly carried in small stores. In many cases the maintenance engineer can accurately estimate this need and set his machine shop or purchasing department in motion when the equipment has not yet been dismantled.

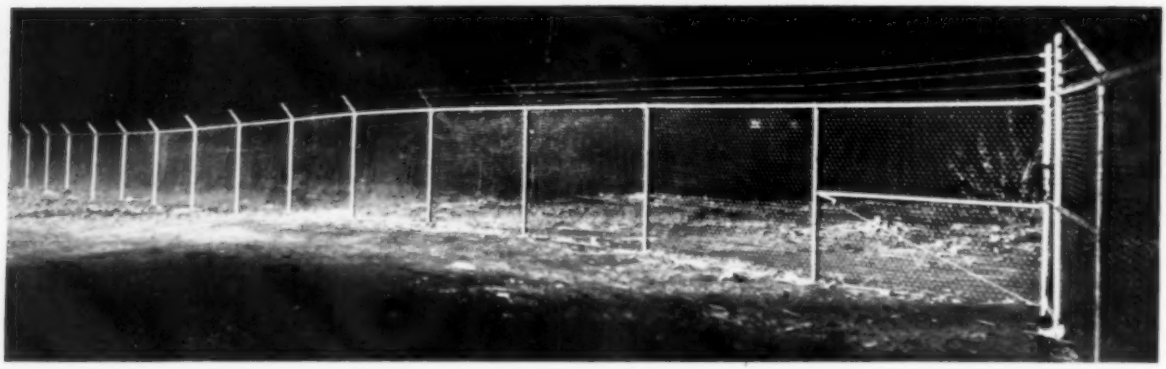
Next the field check — and the service crews are put into action. The small stores warehouseman is again contacted to be certain all necessary spare parts are on hand or enroute from a nearby supply center. There is no delay because of an odd size bearing not on hand or a shaft sleeve that doesn't fit.

The Kardex file card can provide a further source of rapid information for the maintenance engineer by use of the color tabs. A green tab on the left may indicate a piece of equipment has just been overhauled. This will aid the engineer in his plant tour. A piece of equipment just overhauled may be in operation without a grease connection or water seal line connected. A spot check shortly after a piece of equipment is put into operation can often save valuable downtime.

A red tab on the left may indicate possible or approaching trouble. Perhaps a bearing may need "coaxing along" until an overhaul period can be scheduled. An experienced maintenance man knows it is sometimes possible to "hold" a vertical pump for a time with graphite packing, even though the upper shaft bearing may be almost gone. This example and similar "tricks of the trade" are often used to keep a piece of equipment "limping along" but doing its job until an overhaul period can be scheduled. The red tab "flags" the equipment for special attention until such time is provided.

This may sound like a maintenance engineer's dream, and it doesn't work this way 100% of the time, but it will work about 90% of the time and that's well worth the effort expended.

GOOD LIGHTING a Tool for Production



Floodlights aimed directly at the fence illuminate the area immediately adjacent and the glare from the lamps prevents the intruder from seeing inside.

PART 10 —————— Protective Lighting

By ROY A. PALMER
Duke Power Company
Charlotte, North Carolina

PROTECTIVE LIGHTING could have several meanings. Both interior and outdoor lighting may assist guards in locating and apprehending unauthorized persons bent on thievery, vandalism or sabotage. Protective lighting in a specific location may serve guards in speedy and accurate identification of badges, passes or merely facial recognition to prevent unauthorized individuals from entering restricted areas. Such lighting can protect the guard by keeping him in comparative darkness while he can observe activity in lighted areas. Employees are less likely to be molested in well lighted areas. Loading platforms which are well lighted assure safe and proper dispatch of materials. Smoke can be detected more easily when buildings are surrounded by light. The mere presence of illumination is a powerful deterrent to anyone approaching with malicious intent.

Aside from the protection of property and materials, safety of employees is an important factor. This is apparent where materials are stored outdoors and workers must move about in these areas.

The night guard or watchman must be able to see quickly and easily to spot an intruder who may be exposed for only a few seconds. The areas around the plant should be uniformly illuminated so that there will be no dark places to conceal an intruder or make it easy to ambush the watchman. Sufficient number of lighting units should be provided so that their beams overlap. Thus, if a lamp burns out, a dark hiding place will not be created.

It is only natural that management might desire only a minimum of illumination around the outside of the plant in trying to economize. However, enough light must be provided to be sure that the watchman can discern objects of poor contrasts such as an individual in dark clothing against a dark background. More light falling on them will aid very materially in quickly detecting a culprit.

Sometimes we can see an intruder by silhouette. Usually dark clothes are worn by one who plans an act of depredation. If the background is illuminated he becomes silhouetted against it. Finishing the lower parts of buildings in a very light color will aid in providing a light background. Sometimes white stripes can be used to advantage.

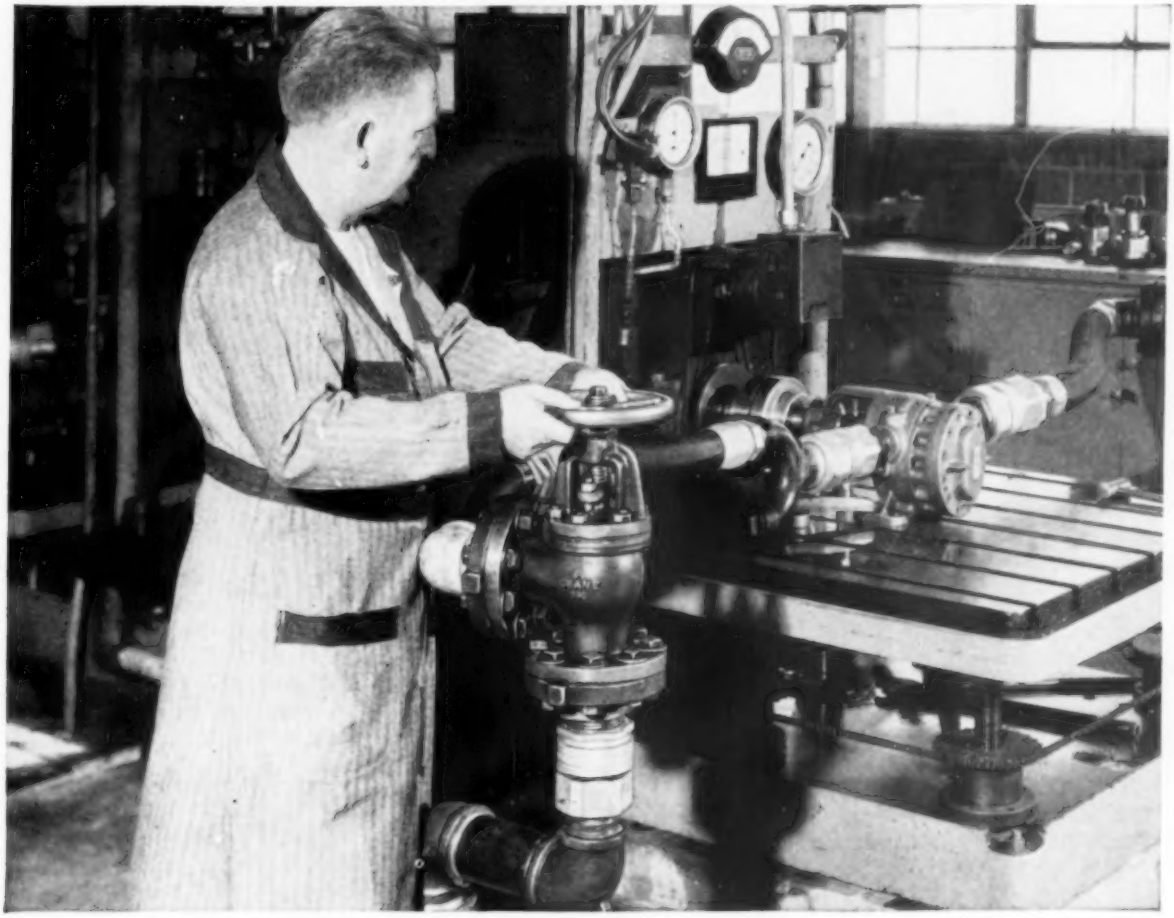
Outdoor lighting provides an opportunity for directional lighting — aiming the lighting units away from the point where the guard is stationed. The guard is then not only concealed by the dark area where he is located, but the glare blinds the intruder, doubly concealing the guard.

Sturdy Equipment

One must assume in discussing protection that inimical forces are at work against the plant and the equipment surrounding it. Heavy duty floodlights mounted on high poles or on buildings where they are not easily accessible to marauders will assure against tampering and destruction as well as guarantee long service. However, when placing the equipment with this in view, the matter of easy lamp renewal and cleaning should be kept in mind.

Large plants and those having

Roper Hydraulics, Inc. Experiences CRANE Quality



Uses CRANE valve on severe throttling for 23 years—without repairs

Twenty-three years ago, Roper Hydraulics, Inc., Rockford, Ill., installed this Crane 2½-inch, 300-pound bronze plug disc angle valve for throttling service on a 300- to 400-pound pump test line. Since then, testing has been done at pressures up to 1000 pounds without valve failure.

Altogether, this Crane valve has been operated intermittently on an average of 30 hours weekly for 23 years! Only recently was it necessary to replace some of its working parts. Here is demonstrated proof that Crane quality is really the durable kind purchasing agents seek . . . the dependable kind that engineers and plant operating people want.

In valves and fittings for every service, Crane quality gives greater assurance of value—it's today's most reliable price tag. And on all your piping equipment needs, you can get prompt delivery through your local Crane branch or wholesaler.

IDEAS FOR YOU in the 36-page booklet "Valve Performance Facts." Ask your Crane Man for a copy, or write to the address below.

CRANE VALVES & FITTINGS

PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill.—Branches and Wholesalers Serving All Areas

Floodlights are mounted on poles 30 ft high. This permits aiming them downward to cover a relatively wide area.

activities which require stricter protection may have sentry towers for guards. Such towers should be kept dark to permit the guard's eyes to be dark adapted and to conceal him from view. They should preferably be spaced not more than 1,000 feet apart. To supplement the permanent floodlighting, a searchlight placed on top of the sentry tower and controlled from the inside can be used to sweep the area with a concentrated beam to locate intruders or to investigate suspicious actions.

Some locations can make use of lamps of the "sealed beam" type. These are made of pyrex glass and will not break when rain or moisture strikes them when in operation. Their sealer-in reflector and accurately placed filament provide an efficient, controlled beam of light. They are available in a flood type of distribution for spreading the light over a relatively large area or in a spot type distribution having a more concentrated beam. Equipment is available to house these lamps which range from 150 to 500 watts in size. They can be used singly for lighting limited space, or in clusters to illuminate larger areas.

Various Methods

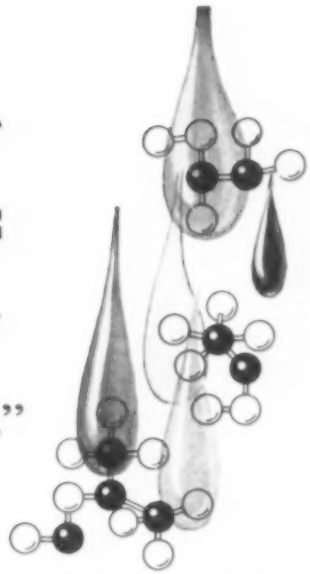
The method of lighting for specific locations will vary with the size and location of the plant, the type of products made, the materials stored outdoors and other similar conditions. In some localities there will be more or less need for protection against malicious or destructive intruders and in other locations there may only be need for floodlighting to protect against theft in storage yards.

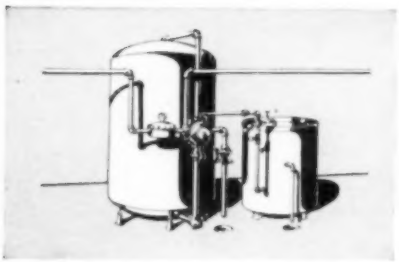
Where a fence surrounds the plant, floodlighting along the perimeter will be desirable. This is particularly true in isolated locations or in areas where undesirable characters may lurk. If there is no surrounding property where glare of lights directed across the fence will not be annoying, such a method is useful because it makes it difficult for anyone approaching the fence to see inside the property. In such lighting the lamps

Floodlights provide illumination for parking area, entrance gate, and around entire building.

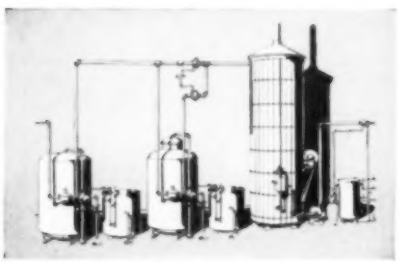
Quote and Unquote:—

"Elgin has dug deeper into ION EXCHANGE than any other firm"

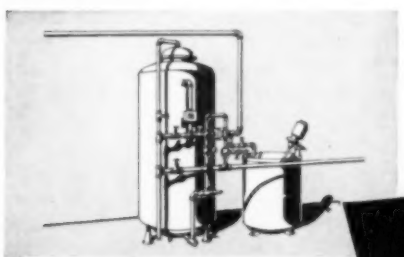




SOFTENING BY ION EXCHANGE — used to eliminate calcium and magnesium hardness from water. All types of ion exchangers available to meet specific conditions.



DEALKALIZATION BY ION EXCHANGE — produces soft water of controlled alkalinity. Various exchangers used, depending on requirements.



DEIONIZATION BY ION EXCHANGE — produces water of better than distilled quality. Ion exchangers of mixed-bed or multi-column design give "tailor-made" effluent to meet process or boiler plant requirements.

An engineer said this when he was asked why he had brought his not-too-simple water conditioning problem to the Elgin organization.

The particular way he put it set us to wondering how many men with water conditioning problems realize the great strides that have been made in ion exchange . . . how many recognize the vital importance of dealing with a firm that has played a leading role in ion exchange development and application.

It is always bad taste—often bad business—to boast; so we won't say that Elgin has dug deeper than *any* other organization. We simply say that certainly no firm has dug *deeper* into ion exchange application than has Elgin during nearly a half century of specialization.

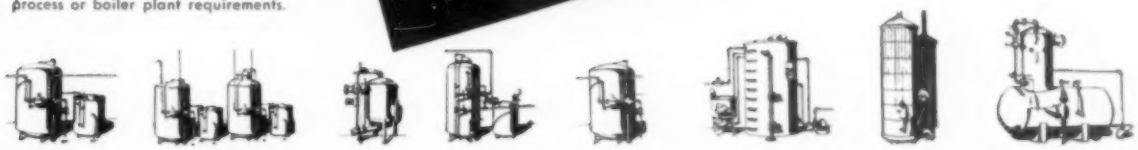
It is squarely on the record that across the years we have *been a part* of the transition from the first simple greensand through the highly specialized ion exchangers and methods that are today accomplishing little short of water conditioning miracles. Just three of almost countless examples of this are given at the left.

Yes, today it can be said that there is a way to "make over" *any* water supply—*your* water supply—to exactly the kind and quality needed for *any* use. When you put your problem up to Elgin you are certain that Elgin "deep digging" will not only assure you the *right* way, but, still more important, the most *economical* way.

Never forget that Elgin works with *all* methods. No bias; no single-track thinking. One of our engineers will be glad to study your conditions and give you a demonstration of Elgin deep digging.

ELGIN
WATER CONDITIONING
SINCE 1908

ELGIN SOFTENER CORPORATION
132 N. Grove Avenue, Elgin, Illinois
Representatives in Principal Cities
In Canada: G. F. Sterne & Son Ltd., Brantford



Isolated sites require protective lighting at all points around the plant.

face the fence at right angles.

If it is necessary to guard against annoying the neighbors with glare, the lamps can be so directed that they illuminate an area along the length of the fence. In either case, the lighting equipment should be spaced not more than 150 ft apart and mounted 20 to 30 ft from the ground. If the equipment can be mounted on top of a building, the mounting height can be as much as 50 ft.

Various types of equipment can be used depending upon the applications just stated. A floodlight having a Fresnel lens which spreads the light horizontally 180 degrees with a comparatively narrow vertical beam can be used to illuminate the fence and a considerable area beyond it. These units should have 300 or 500 watt lamps. They can also be used to advantage in floodlighting storage yards. Some street lighting equipment can be used as well as floodlights, equipped with 300- or 500-watt lamps and having glass covers to protect the lamps from rain and bugs.

Various Locations

All gates and entrances should be particularly well lighted in order that cars, trucks and individuals may be rapidly and accurately identified. The area immediately around the entrance should be well lighted to prevent any opportunity for rushing the guard from a nearby darker place. A lamp should be located so its beam can be directed into a car or cab to prevent concealment of an individual whose entrance is unauthorized.

If it seems necessary only to surround a building with light, a number of smaller lamps spaced relatively close together will permit overlapping of beams and will provide greater assurance of continued illumination than will a few large units when a lamp burns out.

Many plants have areas where explosive or volatile material is stored. Other vital locations where there are power, heat, water or communication equipment, require good lighting not only to protect them but also to assure safety of employees who need to work with or maintain such equipment.

Shipping areas require high levels of illumination not only to accurately and safely handle and dispatch materials but also to prevent theft, sabotage and accidents. Lighting units should be so placed that there are no severe shadows cast by trucks, box cars or piles of materials. Here again, several small units can be used to advantage rather than a few large floodlights.

Parking areas require uniform high level of illumination to permit safe movement of cars and employees and to prevent prowlers and unnecessary damage to vehicles. Floodlights having 750- or 1,000-watt lamps mounted 30 ft or higher will illuminate these areas effectively. Each pole can have several floodlights mounted on it to direct the light in all parts of the parking lot.

All lamps for protective lighting must be separately wired from other lighting systems in the plant. Wherever possible, cable should be run underground and concealed in other ways to prevent wilful cutting. Panel boards serving these circuits should always be kept locked and the keys placed in the hands of reliable employees.

By providing protective illumination around the plant, we also gain the advantage of attractive night appearance of the plant and assure valued employees a safe and pleasant place in which to work. Protective lighting thus pays good dividends in more than one direction.

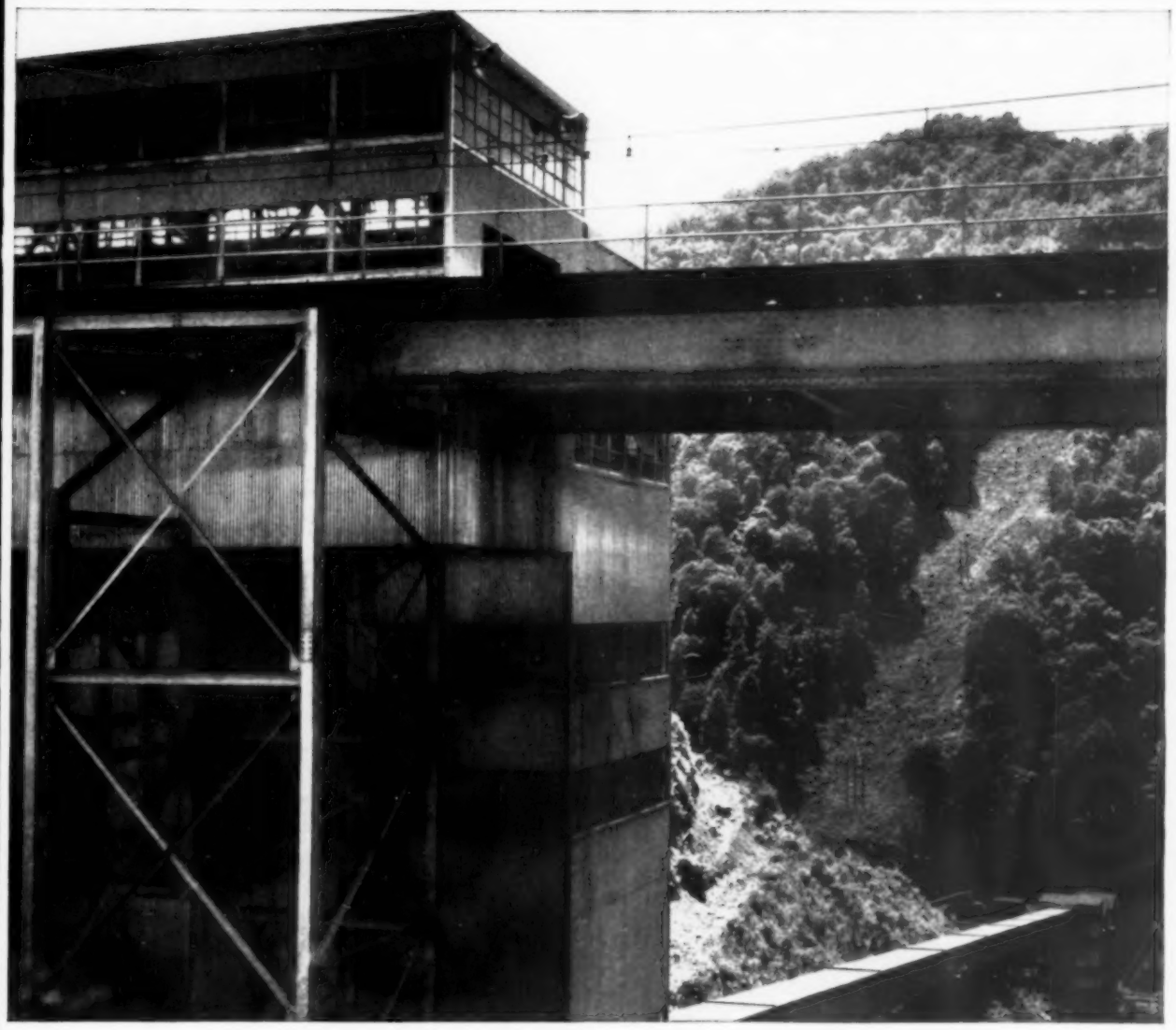
Special Hazard Fire Protection

IN AREAS where there in an easily ignitable and fast burning substance in the nature of a flammable vapor, process gas, flammable liquid or dust, special hazard fire protection is required. Nearby sources of heat add to the danger.

The rapid development and adoption of new, fire-hazardous materials and their use in a wide variety of manufacturing and service industries have introduced the special hazard problem to unnumbered plants previously considered only normal fire risks.

Grinnell's new 40-page manual "Special Hazard Fire Protection" will bring you up-to-date on specialized equipment and the most advanced methods. Data features water spray, selfcon water spray, foam, carbon dioxide, and dry chemical systems.

For your complimentary copy write: Grinnell Company, Providence 1, R. I.



Large, modern preparation plants give Beacon Coal the high degree of uniformity in properties, size, and quality that assures top efficiency in today's combustion equipment.

BEACON COAL

EASTERN GAS AND FUEL ASSOCIATES

PITTSBURGH • BOSTON • CLEVELAND • DETROIT • NEW YORK
NORFOLK • PHILADELPHIA • SYRACUSE

For New England: New England Coal & Coke Co.; For Export: Castner, Curran & Bullitt, Inc.

Pour Your Own Silicone Gaskets

EVER THOUGHT of using molded silicone rubber seals or gaskets to eliminate maintenance problems — only to learn that the mold costs involved in producing the limited quantity you needed priced it right out of range?

If so, you might try the example of the production people at Tru-Scale, Inc., Wichita, Kansas. They obtained silicone rubber D-gaskets at a fraction of the regular price by simply "pouring their own."

Tru-Scale needed special seals for their epoxy-glass compression and vacuum molds, used to produce an ever-increasing variety of polyester-glass prototype parts. Even custom molded seals of ordinary rubber were prohibitively expensive for these special molds, especially in proportion to the relatively few plastic parts required per individual prototype mold.

Tru-Scale did try various kneaded mastics, only to have them deteriorate badly upon contact with the polyester resin. Then they tried Silastic RTV, the new Dow Corning silicone rubber that vulcanizes without heat or pressure.

How they did it: first a groove of the proper diameter and cross-section was routed out of birch-faced plywood. After sanding and sealing, the groove was rubbed down with plain wax for easy release and a smooth finish, and was poured full of Silastic RTV. The pouring was allowed to set overnight. The overflow was then trimmed off and the finished seal taken out, smooth and bubble-free, ready to go to work. No further curing was required.

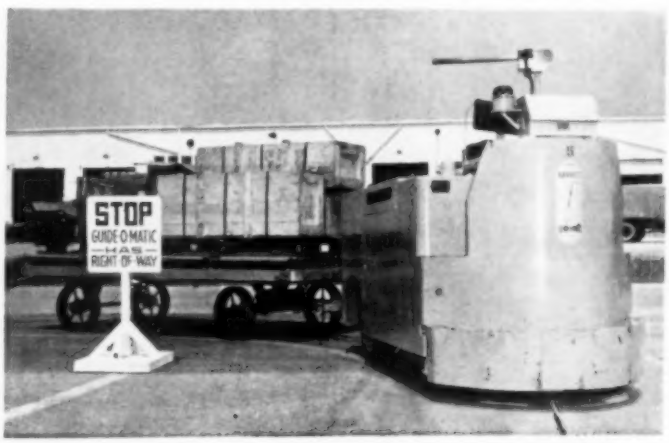
Tru-Scale points out that the grooves could easily be rectangular or V-shaped as well as U-shaped, that the ring could be any configuration rather than just circular, that two D-seals could be cemented together to make an O-ring, and that the seal could be reinforced if necessary with a ply of glass tape between layers of Silastic. For themselves, they prefer the softness of the plain gasket because it helps assure a more positive seal.

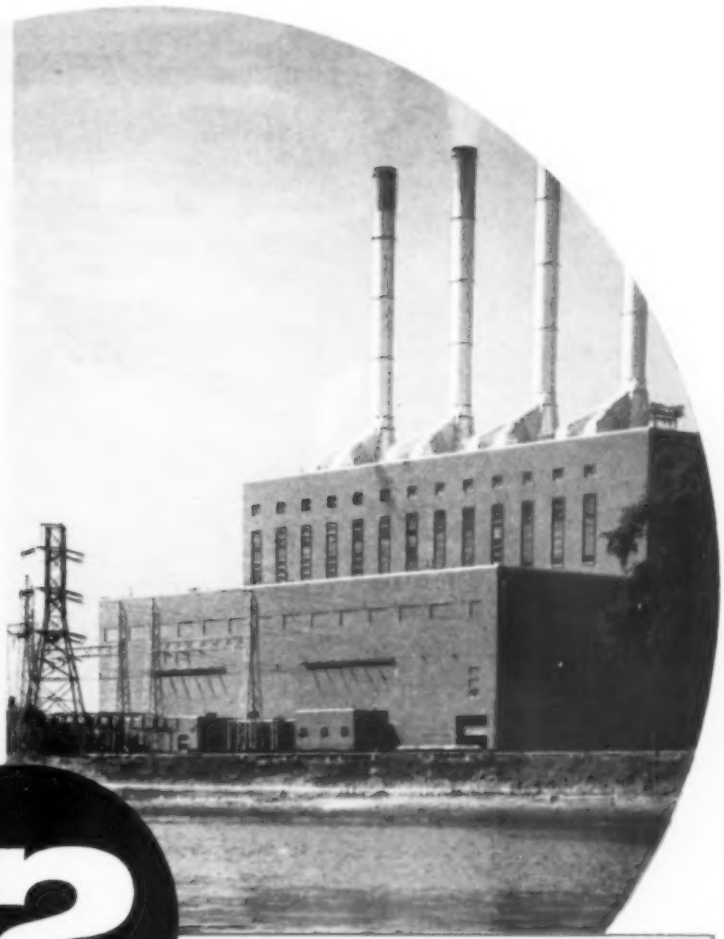
So far, Tru-Scale has used this new do-it-yourself method to produce silicone rubber rings up to 48-in. in diameter and with a $\frac{1}{4}$" x $\frac{3}{4}$" cross-section. Their material cost for a typical ring, say 24-in. diameter, is estimated at $1.25. As for service life, some of the rings have seen as many as 30 cycles to date without a sign of deterioration.

Three-Mile Route . . . No Driver

HERE IS one of five heavy duty Guide-O-Matic Barrett-Cravens tractors now in operation over a three mile route in the warehousing area of Kelly Air Force Base, San Antonio, Texas. Driverless tractor trains, serving five warehouses, run indoors, outdoors, across railroad tracks, and up and down ramps, without an operator.

Electronic tractors are guided by a wire embedded in the floor and units automatically obey signals. Before sending tractors on predetermined routes a programming panel is set up to tell tractors where to stop. At selected stations the tractor stops, blows its horn, and if within one minute nobody comes to remove the load, goes on to next pre-selected station. Rotating red light warns of the approach of the automatic Guide-O-Matic tractors and the tractor bumper stops the train immediately upon contact.





At the Albany Power Station

12 Pacific Boiler Feed Pumps Serve NIAGARA MOHAWK

Following the original installation of 6 Pacific Type BFI Boiler Feed Pumps in 1951 Niagara Mohawk added a battery of 3 Pacific Boiler Feed Pumps in 1952—and 3 more in 1953.

This record of repeat orders (one of many similar records) provides hard, factual evidence as to the dependability, efficiency and excellent design built into every Pacific high pressure high speed boiler feed pump. For additional data on these reliable pumps write for Bulletin 122.

PACIFIC

BF-28

PACIFIC PUMPS INC.

A Division of Dresser Industries, Inc.

HUNTINGTON PARK, CALIFORNIA

Southern News Briefs — Continued from Page 30

Power Specialty Represents Solar

Power Specialty Company, with headquarters in Houston, Texas, has been named by **Solar Aircraft Company** as representatives for its industrial bellows and expansion joints.

The Power Specialty Company will represent Solar's industrial products in the Texas and Louisiana gulf area. Offices of the Power Specialty Company are located at 2000 Kipling Street, Houston, Texas; 4512 North Central Expressway, Dallas, Texas; and 5534 Canal Boulevard, New Orleans, Louisiana.

Industrial expansion joints are used in large quantities by the petroleum and chemical industries, public utility power plants, atomic energy installations and other industries. They are used in applications where temperature, pressure, expansion, axial and angular movement and vibration present difficult piping problems.

Robertshaw-Fulton—Tenn.

Robertshaw-Fulton Controls Company has announced the appointment of Vice President **Woodford D. Miller** as general manager of the company's Fulton Sylphon Division, Knoxville, Tenn.

Mr. Miller is a director of the company and was formerly attached to company headquarters, Richmond, Va.

He replaces Vice President Freeman G. Cross, who will continue at the division in charge of expanded marketing and product development. The new post also involves possible acquisitions and mergers of companies whose product lines can be integrated into the Fulton Sylphon operation.

Fulton Sylphon's plant, with about 500,000 square feet of floor space, is the company's largest single manufacturing unit.

In April, the division opened a new product development laboratory in Knoxville.

Air Preheater—Atlanta

The Air Preheater Corporation, manufacturer of heat exchange equipment, has located its sales and service office in Atlanta in the new 1371 Peachtree Building.

Ben S. Kelley is manager of the office serving Georgia, Florida, Virginia, North Carolina and South Carolina.

Commercial Shearing Serving Southeast

A new sales office to serve the Southeastern states has been opened at 1371 Peachtree Street, N.E., Atlanta, Georgia, by **Commercial Shearing & Stamping Company.** Commercial is a custom producer of stampings and upset forgings, and fabricates tunnel liner plates and support steel for tunnels and other excavations. Commercial is also a leading manufacturer of fluid power pumps, motors, valves, and cylinders.

Named Southeastern Regional Manager to head the new office is **Melvin E. Stewart,** who for the past 12 years has been in Commercial's sales department at the company's headquarters in Youngstown, Ohio.

Daniel Construction — S. C.

Buck Mickel has been made Vice President and Assistant General Manager of **Daniel Construction Company,** Greenville, South Carolina. Mr. Mickel joined Daniel in January, 1948, as a Field Engineer. After three years service in Europe during the Korean conflict, he returned to Daniel in 1952 in the Cost Department. He then was promoted to Project Manager and Estimator.

Why a Steam Trap Has to Handle "Air"

Low temperatures and corrosion of equipment are often evidence of inadequate trap air venting capacity

Air, with its load of oxygen and carbon dioxide, has an unwholesome habit of interfering with the efficiency of steam heated units. If steam were always free of these undesirable companions, things would be a lot simpler for men-who-operate-plants. Because it isn't, three unhappy situations frequently occur:

1. ***Operating temperatures are subnormal.*** This is a two-part problem. First, an air-steam mixture has a lower temperature than pure steam at the same pressure—see Table A. Secondly, air can "plate out" on heat transfer surfaces as shown in Figure 1. Under some conditions, such an air film will knock down heat transfer efficiency by as much as 50%.

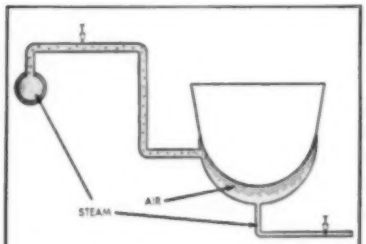


Fig. 1. *How air can "plate out" on heat transfer surfaces. This "insulation" drastically reduces heat transfer efficiency. Armstrong trap operation creates turbulence in the equipment that prevents this.*

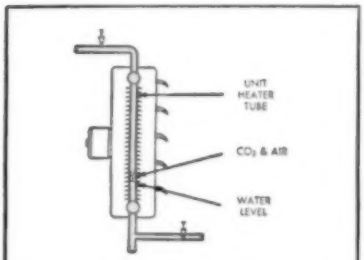


Fig. 2. *Corrosion occurs when units are not kept continuously free of both condensate and air. Armstrong traps discharge both,* at steam temperature, *as fast as they accumulate.*

2. ***Corrosion rears its ugly head.*** Oxygen and carbon dioxide are real trouble-makers. CO_2 gas goes into solution in condensate, forms carbonic acid and chews away at vulnerable metal sections. O_2 aggravates the situation. See Figure 2.

TABLE A—How air reduces steam temperature.

Gauge Pressure	Temp. of Steam with No Air Present	Temp. of Steam Mixed With Various Amounts of Air (% Air by Volume)	
		10%	30%
10.3	240.1	234.3	220.9
25.3	267.3	261.0	246.4
50.3	298.0	291.0	275.1
75.3	320.3	312.9	295.9
100.3	338.1	330.3	312.4

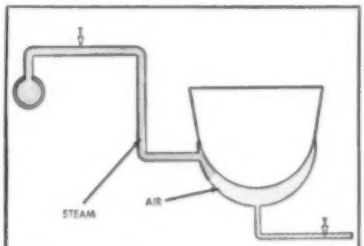


Fig. 3. *When steam is turned on, it takes a trap with extra air venting capacity to provide fast heat-up.*

3. ***Heat-up is slow as a snail.*** Air has a picnic in units that are shut off periodically. Figure 3 pictures the problem. Lines and equipment literally fill up with air. When the steam is turned on it can get in only as fast as the air gets out.

Enter Steam Traps

Curing these steam system ailments involves an operation sometimes called a "trap transplant." It consists of removing traps that don't get the air out and replacing them with traps that do.

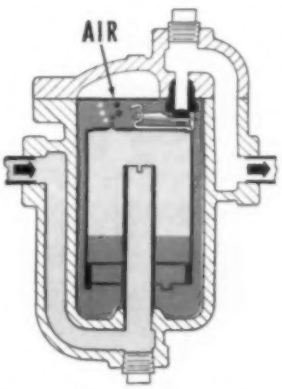
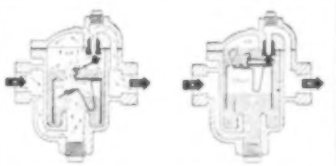


Fig. 4. *Air entering an Armstrong trap passes through the bucket vent and accumulates in the top of trap. When trap opens, air is discharged along with condensate.*

Figure 4 shows how an Armstrong inverted bucket trap continuously vents air. What the picture doesn't show is a built-in plus-value of this trap's design. An Armstrong trap opens suddenly, creating a momentary pressure drop and turbulence in the unit being drained. This breaks up air films and "pumps" air down to the trap so it can be vented.

The vents in standard Armstrong trap buckets will pass all the air normally encountered. In special cases, such as paper machine dryers, the vents are correctly sized larger at the factory to meet the requirement.



Thermostatic vent open. *Thermostatic vent closed.*

Fig. 5. *Open float with thermostatic vent for off-and-on units. When trap is cold, vent is open, permitting air to blow through when steam is turned on. When steam reaches trap, heat closes thermostatic vent. Then, regular bucket vent handles all air coming in with steam.*

Open Float with Thermostatic Vent

Super air-venting capacity is a must for fast heat-up of low pressure unit heaters, heating coils, steam headers and other units that are on-and-off. Figure 5 shows how the Armstrong open-float-with-thermostatic-vent trap takes care of this.

* * *

The 44-page Armstrong steam trap book covers other features of the Armstrong trap as well as its excellent air handling characteristics. This catalog also discusses trap selection, installation and maintenance. Your local Armstrong Representative or Distributor will be glad to give you a copy. Call him, or write Armstrong Machine Works, 806-4 Maple Street, Three Rivers, Michigan.

ARMSTRONG STEAM TRAPS

W. L. Sullivan, Glenn Ellis, Ted Beyert and Felix Truss, Jr.

Federal Pacific Expands in South

Federal Pacific Electric Company has promoted four regional sales executives in the South and Southwest, according to an announcement by Robert L. Bobo, general sales manager.

Those advanced were **W. L. Sullivan,** former Southwestern district manager, to Southeast regional manager; **Glenn Ellis,** previously Dallas branch manager, to Dallas district manager; **Ted Beyert,** former Houston branch manager, to Houston district manager; and **Felix W. Truss, Jr.,** previously a field engineer with the company's Oklahoma City sales office, to Kansas City district manager.

Mr. Sullivan, the new Southeast regional manager, will direct company sales activities in the states of Georgia, Alabama, South Carolina, Florida, and parts of Kentucky, Tennessee, Virginia, Louisiana, Mississippi and North Carolina from headquarters at 5745 Peachtree Industrial Boulevard, Atlanta, site of a new Federal Pacific regional plant.

A native of Dallas, Texas, Mr. Sullivan has spent his entire professional career with Federal Pacific. He joined the company in 1946 and before becoming Texas and Oklahoma district manager, worked as a Federal Pacific sales engineer in the Oklahoma and north and east Texas area.

Glenn Ellis, new Dallas district manager, was employed by the Texas Electric Service Co., Ft. Worth, Texas, and General Electric in Schenectady, N. Y., before joining Federal Pacific in 1952. In 1956 he was awarded a citation by Federal Pacific for outstanding sales achievement.

Ted Beyert, who now heads the Houston district, joined Federal Pacific in 1948. In 1952 he was made field engineer at the company's San Antonio office, and a year later, Houston branch manager.

Felix W. Truss, Jr., new Kansas City district manager, has been with the company since 1952 when he was appointed a field engineer at Federal Pacific's Oklahoma City branch. Previously, he had worked as plant manager of the Southern Freezing and Preserving Company, Dayton, Tenn., and as a field engineer for Ebasco Services, Inc.

H. K. Porter—SE

David P. Wroten has been appointed District Manager, Southeastern territory, for **W-S Fittings Works, Forge and Fittings Division, H. K. Porter Company, Inc.** At his headquarters in Atlanta, Georgia, he primarily will assist and service W-S distributors in the states of Tennessee, North Carolina, Mississippi, Alabama, Georgia, South Carolina and Florida.

Mr. Wroten came to Forge and Fittings Division in 1953 and served as an inside sales representative until 1957. Previously he had been a fittings salesman in the metropolitan New York territory.

Unistrut—Georgia

Unistrut Products Company, 933 W. Washington Blvd., Chicago, pioneer and leader in the adjustable metal framing industry, has established a new company-owned subsidiary, Unistrut Steel Service Co., Atlanta, servicing the territory formerly served by an independently owned distributorship. The company will be expanded to serve the southeast. **Lem Hightower** and **Curtis M. Wood,** both of Atlanta, are associated with the Georgia subsidiary.

Midwest Piping—South & Southwest

The re-opening of sales offices in Atlanta and Tulsa has been announced by **Midwest Piping Company, Inc.**, St. Louis, major fabricator and erector of power and process piping systems and manufacturer of welding fittings.

The Atlanta office, under the direction of John Castleman, is at 72 Eleventh Street, N.E., Atlanta 9. The Tulsa office is headed by **Claude L. Doughman** and located at 1640 East Twenty-First Street, Tulsa.

Two new sales representatives have joined the Midwest organization, according to Phil R. Becker, director of manufacturing sales. They are **C. B. Moore**, for many years with the Jones & Laughlin Supply Division in Houston, and **Cecil Hilliard**, formerly with Republic Supply Company and more recently independently engaged in the oil field supply business in Houston. Both are headquartered in the Midwest Piping Houston office, relocated at 509 West Building, Main and Walker Streets.

Bailey Meter—Va.

L. R. Kent of Bailey Meter Company has been appointed Resident Engineer in charge of the Richmond, Va. office. Mr. Kent is also Resident Engineer in charge of the Baltimore, Md. office — both offices being subdivisions of the company's Philadelphia district.

The Richmond territory covers southeastern Virginia. The Baltimore territory includes Maryland, Washington, D. C., and northern Virginia.

The Richmond office headquarters are at 17 S. Belmont Ave., Room 202, Richmond 21, Va. Headquarters for the Baltimore office are at 2026 Maryland Ave., Baltimore 18, Md.

Southern News Briefs (Continued)

Reynolds Aluminum Supply—Florida

Reynolds Aluminum Supply Company, formerly Southern States Iron Roofing Company, has announced the establishment of a complete warehouse operation in Jacksonville, Florida.

In addition to its inventory of aluminum, galvanized and stainless steel and copper industrial metals, the new warehouse, located at 1612 East Eighth Street, will have on hand a complete range of aluminum and steel roofing, insulation products, rain carrying equipment, Colorweld awning supplies and many other building products. This operation makes possible an improvement in service to areas now being served by the Atlanta based firm's warehouses in Savannah, Miami and Birmingham. Longtime resident **Leo Sheridan** will continue to direct the Company's Jacksonville sales efforts from the new location.

Reynolds Aluminum Supply Company, the largest combined building materials and industrial metals distributor in the Southeast, maintains nine other complete warehouse operations, in addition to its Southern States Containers Divisions in Birmingham and a large Manufacturing Division in Atlanta. The firm's General Offices are in Atlanta.

Lincoln Electric—Memphis

The Lincoln Electric Company, Cleveland, Ohio has announced the opening of a new district office in Memphis, Tennessee.

Robert W. Thomas moved from the Philadelphia Office to become District Manager in Memphis. Mr. Thomas joined Lincoln in 1947 in the Columbus Office.

BS&B—Alabama

Hudson Engineering Company of Birmingham, Alabama, has been appointed manufacturers' representative for BS&B controls, safety heads, and tank vents, according to Henry A. Ruysser, Executive Vice President of **Black, Sivalls & Bryson, Inc.**

A. M. Byers—Houston

A. M. Byers Company, world's largest producer of wrought iron, has announced the appointment of **John G. Cumming** as manager of the firm's southwestern division with headquarters in Houston, Texas.

Mr. Cumming has been with the Byers Company as a field service engineer in New Jersey, working out of the firm's New York Division Office.

C & D Batteries—Ala.

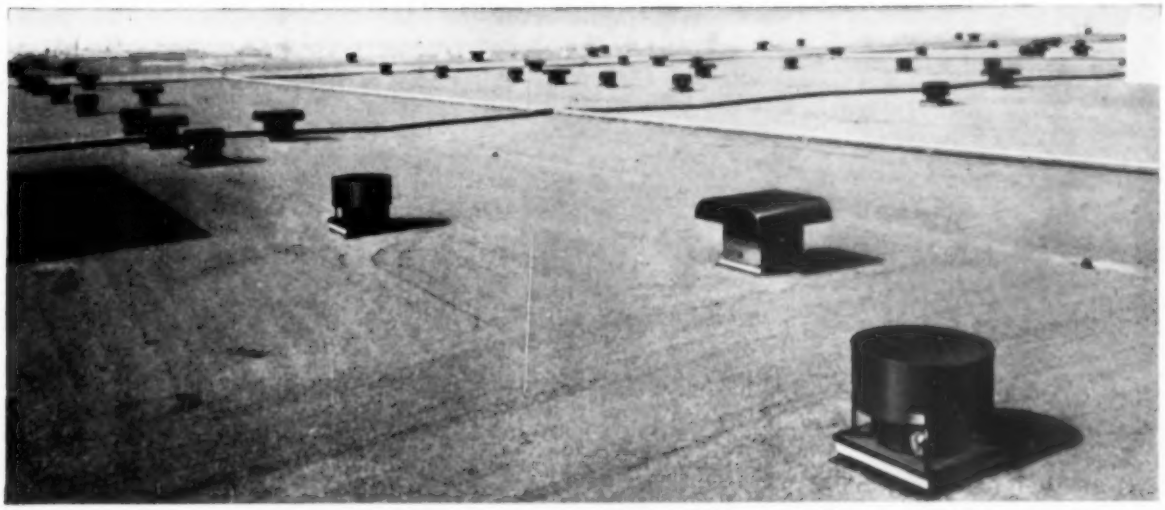
Albert S. Schnyder, 2552 Kreitner St., Mobile, Ala., has joined the sales organization of **C & D Batteries, Inc.** of Conshohocken, Pa. Schnyder is associated wtih Gregory-Salisbury and Co., Inc., C & D's Mobile, Ala. sales representatives.

C & D manufactures industrial storage batteries for powering electric lift trucks; for the telephone industry; and for railroads, mining, control, and other industrail applications.

Latrobe Steel—Mo.

Latrobe Steel Company has opened a new branch office in St. Louis, Mo. A veteran sales engineering representative of the company, **Frederick E. Allison, Jr.,** heads the office which serves Missouri, Kansas, Northern Arkansas, and Oklahoma.

Mr. Allison has been with Latrobe since February of 1946, when he joined the company as office manager in Detroit. He became Chicago district manager four years later.



Some of the 188 Buffalo Sky Vent® Package Roof Ventilators and Winter Make-Up Air Units installed on roof of midwest automotive plant.

HOW TO HAVE YEAR 'ROUND LOW COST— HIGH VOLUME VENTILATION!

1. **LOW INITIAL COST** — "Pump more air through fewer holes" — that's the principle involved. It's costly to cut through existing structures and build up curbed roof openings to install power roof ventilators. Even in new construction it costs money to provide such openings. The higher capacities of powerful "Buffalo" Sky Vents® minimize the number of roof openings required for the desired volume of ventilating air. You save construction expense — **and** you save on initial equipment cost because of the smaller number of "package" units required.

2. **LOW OPERATING COSTS** — High fan efficiencies in "Buffalo" Sky Vents® give you the most effective ventilation at the lowest possible operating cost. Further savings in maintenance costs are the direct result of sturdy, durable "Buffalo" construction features.

3. **LOW PLANT CHANGE-OVER COSTS** — If you periodically rearrange your production equipment, or find it advantageous to do this at some future date, bulky central ventilating systems with extensive duct work can make such plant modifications very costly. "Buffalo" Sky Vents® are on the roof, out of the way. They can save money you would otherwise spend rearranging central system components to change your production layout.

Whether you're planning ventilation for a new plant, or as part of your modernization plans, it will pay you to investigate the savings you can enjoy with "Buffalo" Sky Vent® Power Roof Ventilators. Contact your nearby "Buffalo" Engineering Representative, or write for Bulletin FM-2345.

"Buffalo"

BUFFALO FORGE COMPANY

530 Broadway • Buffalo, N. Y.

Buffalo Pumps Division, Buffalo, N. Y.
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
Sales Representatives in all Principal Cities

INDUSTRIAL EXHAUSTERS BELTED VENT SETS PROPELLER FANS "E" BLOWERS - EXHAUSTERS

News (Continued)

Vulcan Steel—Ala.

Vulcan Steel Container Company has announced the appointment of **Leo T. Ryan** as General Sales Manager with headquarters in Birmingham, Ala.

Vulcan Steel Container Company manuafctures a complete line of steel pails and drums one to sixty-five gallon sizes, including Hi-Bake linings and lithographed containers.

U. S. Rubber—Mo.

Machinery and Supplies Co., Inc., of 2000 Walnut Street, Kansas City, Mo., has been appointed a distributor of the industrial rubber products of **United States Rubber Co.**

The Kansas City firm will distribute conveyor belting, transmission belting, rod and sheet packing, all types of hose and other industrial products.

Graver—Atlanta

Graver Tank & Mfg. Co., Inc. has announced the opening of a sales office at 1014 Georgia Savings Bank Building, 84 Peachtree Street, N. W., Atlanta 3, Georgia. The office is under the direction of **Robert C. Best,** District Sales Engineer.

Reliance Elec.—Tampa

Edwin R. Campbell has been appointed branch manager of the sales office of **Reliance Electric and Engineering Company** at Tampa, Florida.

Mr. Campbell has 8 years of experience in the sale and application of electric motors, the last 4 years being in the southeast with headquarters in Atlanta.

Norton—St. Louis

Robert W. Bennett has been appointed a field engineer at the St. Louis office of **Norton Company.**

Bailey Controls for Combustion, Feed Water and Steam Temperature at the St. Clair Power Plant of Detroit Edison Company. The FPC reported a 1956 heat rate at St. Clair of 9,200 Btu per kwhr, making it the sixth most efficient plant in the United States.

Why Bailey is the choice of America's most efficient* STEAM PLANTS!

Take the top six on the Federal Power Commission's heat rate report. All use Bailey Meters and Controls. Five of the six chose Bailey *exclusively!*

Coincidence? Let's take a *larger* sample. Out of the top 46 "most efficient" power plants listed, 38 use Bailey products. Here's why:

1. A Complete Line of Equipment

You can be sure a Bailey Engineer will offer the right combination of equipment to fit your needs. Bailey manufactures a complete line of standard, compatible pneumatic and electric metering and control equipment that has proved itself. Thousands of successful installations involving problems in measurement, combustion, and automatic control are your assurance of the best possible system.

2. Experience

Bailey Engineers have been making steam plants work efficiently for more than forty years. Veteran engineer and new engineer alike, the men who represent Bailey, are storehouses of knowledge on measurement and control. They are up-to-the-minute on the latest developments that can be applied to your problem.

3. Sales and Service Convenient to You

There's a Bailey District Office or Resident Engineer close to you. Check your phone book for expert engineering counsel on your steam plant control problems.

***6 MOST EFFICIENT PLANTS—1956 Heat Rates Reported by FPC**

	Btu/kwhr	Meters	Combustion Control	Feed Water Control	Suphtr. Control
1. Tanners Creek (Indiana and Michigan Electric Company)	9,106	B	B	B	B
2. Kanawha River (Appalachian Electric Power Company)	9,115	B	B	B	B
3. Kyger Creek (The Ohio Power Company)	9,176	B		B	B
4. Muskingum River (The Ohio Power Company)	9,176	B	B	B	B
5. Clifty Creek (Indiana-Kentucky Electric Company)	9,200	B	B	B	B
6. St. Clair (The Detroit Edison Company)	9,200	B	B	B	B

A140-1

Instruments and controls for power and process

BAILEY METER COMPANY

1028 IVANHOE ROAD • CLEVELAND 10, OHIO

In Canada—Bailey Meter Company Limited, Montreal

NEW Product Briefs

Mercury Vapor Protective Lights

H-1 The new Protective Lamp, a development of **Wide-Lite Corporation,** Box 191, Houston, Texas, makes possible the use of efficient mercury vapor lamps for protective lighting in high-security outside areas where instantaneous light is required in all weather.

While admittedly a more efficient light source, mercury lamps previously were impractical in this application because they would not operate on normal voltage at sub-freezing temperatures and, even with voltage adjustments, would fail at temperatures below 20 F.

The Wide-Lite Protective Light solves this problem through the use

of two long-life (6,000 hours) incandescent lamps inside the weather-sealed floodlight fixture with the mercury lamp. The incandescent lamps (which may vary in wattage) provide the instantaneous light needed, even in extreme sub-zero weather. And should the temperature be low enough to delay the starting of the mercury lamp, the incandescents quickly heat the interior of the sealed fixture, bringing the more powerful and efficient mercury illumination into play.

Since each Protective Light has three sources, two incandescent and one mercury vapor, the protected area is not without illumination even if two should fail.

For More Free Data CIRCLE CODE NO. on the Handy Return Card — Page 83

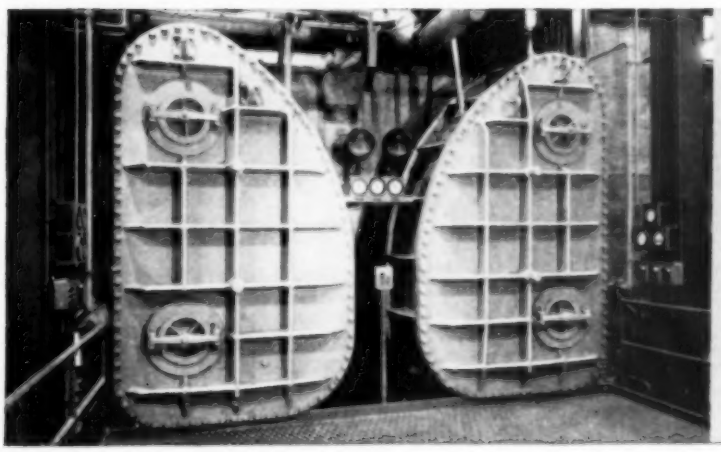
FIRST... The most powerful generator ever built soon will be served by a giant Yuba Surface Condenser which will have 200,000 sq. ft. of heat-transfer surface in a single shell. With a Yuba evaporator, this Yuba condenser will be in operation in Widows Creek Station #7 of the Tennessee Valley Authority. The history-making unit it will serve is a 500,000 KW General Electric reheat turbo-generator: 3600/1800 RPM, cross-compound, double-flow.

FIRST... At Arkansas Power and Light Company, an installation designed by Ebasco Services Inc. will have a 165,000 sq. ft. surface condenser designed and built by Yuba. With seven low and high-pressure feedwater heaters from Yuba, this condenser will serve a Westinghouse single-shaft, tandem-compound, quadruple-flow turbo-generator, the largest of its kind ever built.

Large as these condensers will be, they will also be distinguished by other Yuba characteristics. Their advanced design eliminates the need for excessive headroom. They will be easy to install, not only because of the minimum foundation work required but also because of the precision fit of the sections during re-assembly at the site. Furthermore, in operation, they are certain to show low oxygen content, high heat transfer, and a condensate temperature considerably above the temperature corresponding to saturation pressure.

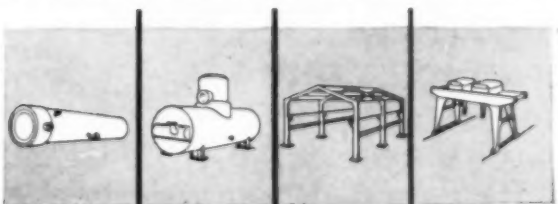
TWO MORE "FIRSTS" FOR YUBA POWER EQUIPMENT

Yuba power equipment is engineered at Yuba Heat Transfer Division, Honesdale, Pennsylvania; manufactured in the East at the Honesdale plant, and in the West at Yuba Manufacturing Division, Benicia, California. For further information write or call Yuba Heat Transfer Divison, Honesdale, Pennsylvania.



◀ This Yuba Surface Condenser, the same type as those described above, is installed at the Valley Steam Plant, Los Angeles Department of Water and Power.

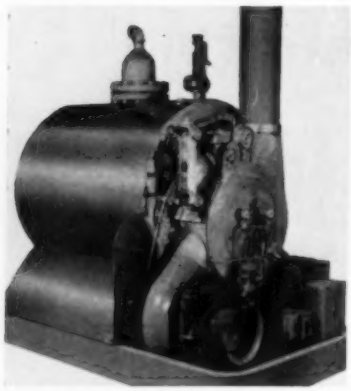
YUBA CONSOLIDATED INDUSTRIES, INC.



Feedwater Heaters | Evaporators | Structural Fabrication | Cranes

YUBA

New Product Briefs (Continued)



Compact Generators in 35-300 hp Sizes

H-2 High steam volume and minimum space requirements are two features of the Vapormatic Coil-N-Shell Steam Generators, products of **Texsteam Corporation.** Box 9127, Houston, Texas.

Full operating steam pressure in ten minutes from a cold start, minimum space requirements with no need for expensive auxiliaries, such as enclosures, stacks and special foundations, make the Vapormatic Coil-N-Shell ideal for processing, cleaning, heating and other industrial applications which fall within its capacity.

Generators are available in pressure ranges of 15 psig to 150 psig. Eight standard models are in production ranging in ratings of 35, 50, 70, 100, 150, 200, 250, and 300 hp.

Initial heating and final separation occur in the shell. Feedwater is introduced into the shell by a standard condensate feedwater pump operating in response to signals from the liquid level control. The feedwater is then drawn from the shell by a separate pump and is recirculated through two parallel tube sections.

Three times more water is circulated through the tubes than is generated into steam. This means that only one third of the total water is generated into steam in the tubes with the remaining two thirds returning to the reservoir section of the shell where it mixes with the makeup water. This accomplishes the initial phase of heating before the water enters the tubes.

All controls, including fuel, water and steam regulation, are accurate and fully automatic. Consequently, a highly skilled operator is not required. The steam generator is fully approved and factory tested prior to shipment.

The unit can be fired by gas, oil, or combination gas and/or oil. Overall dimensions for the 100 hp units are: length, 97½"; width, 50"; height, 93"; and space required for removal of coils, 23".

Maintenance is simple, all parts are easily accessible and the tube assembly can be exchanged in approximately two hours using only simple hand tools and pipe wrenches.

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Platform Truck

H-3 **The Prime-Mover Co.,** Muscatine, Iowa, has announced a new 4000 lb capacity platform truck with hydraulic torque converter drive transmission. The new unit is powered by an 18 hp, 2 cylinder, air cooled engine and features automotive type steering, dual front wheels, heavy industrial drive wheels and a spin-proof differential.

The new truck is controlled by a two position directional change lever, an accelerator and a brake. The three element hydraulic torque converter transmission eliminated clutching and shifting, permits fast smooth starts and provides a continuous flow of power to meet any load condition.

The unit, designated Prime-Mover Model F40, has a 42" wide flat bed that measures 78" long behind the engine enclosure. The space at the right of the engine for handling long bar stock, pipe, lumber, etc., is 21" wide and 122" long.

These 5 "tips" can help you end sump pumping problems *once and for all*

Here are 5 ways to prevent sump pumping trouble before it starts *and* cut maintenance time—with Goulds Fig. 3171 vertical centrifugal sump pump.

1. Put the pump at the proper depth without paying the extra cost for special shaft lengths and pipe columns. Goulds Fig. 3171 fits any pit from 2 to 20 feet deep—comes in standard lengths of 6 inch increments.

2. Maintain pump alignment permanently by means of male and female fits on Goulds Fig. 3171.

3. Prevent damage by fumes, weather, moisture with these features of the Fig. 3171: completely sealed-in upper bearing; Falk all-steel couplings; special vapor-proof construction (upon request).

4. Make external adjustments for impeller clearance with Goulds Fig. 3171—to save time, trouble. Replace upper bearings without disturbing pump or piping merely by removing the motor and coupling from above.

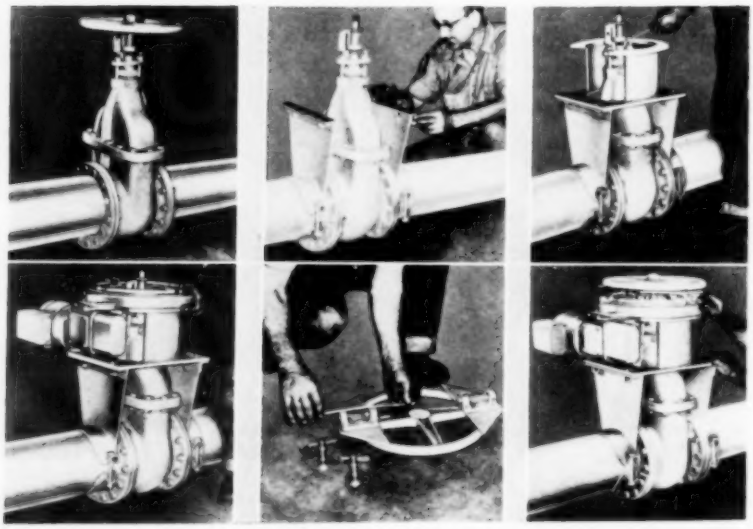
5. Adapt to changing pit depths without ordering a whole new unit. You can adapt this pump *in the field* for new depth or pump ratings simply by ordering a few new parts.

You can get Goulds Fig. 3171 as a single or duplex unit—completely assembled with sump cover—for wet or dry pits, with capacities to 1080 GPM, heads to 290 ft. For more details, contact your Goulds dealer, or write for your copy of Bulletin 726.2.

GOULDS PUMPS, INC.

Dept. SPI-88 Seneca Falls, N. Y.

New Product Briefs (Continued)



TOP — Mechanic first mounts adapted brackets to pipe line or 8" hand-operated gate valve flange as required and checks to see if both brackets are level and parallel. Top adapter is placed in position and bolted to adapter brackets by four bolts. Top adapter must be concentric with valve steam.

BELOW — Actuating mechanism is bolted to top adapter and drive pin brackets bolted to valve handwheel. Mechanic checks to make sure that they are centered and in line. Final step is insertion of self-locking drive pins. Unit is ready to operate after installation of local or remote electrical controls.

Valve Actuating Conversion Unit

H-4 Valvmatic, a push-button-operated valve actuating conversion unit by **C. H. Wheeler Mfg. Company,** 19th & Lehigh Ave., Philadelphia 32, Pa., can be used to convert installed valves from hand to electric motor operation.

Normal installational steps are illustrated. Plant labor can do the job with ordinary tools.

Valvmatic can be used in nearly every application where the valve handle doesn't rise, and where the valve handle can rotate when the valve is operating under power. In the event of power failure, the valve can be restored to manual operation by removing two pins.

Position and torque limits are provided in both directions of rotation to prevent valve injury. Valvmatic can be moved from one valve to another, and no special wiring is needed. It is not necessary to remove the valve from the line to install the unit, nor is machining of special valve nuts involved.

Water Pressure Regulator

H-5 A heavily brass-plated, zinc, die-cast body containing other parts specially protected against corrosion is featured in the new line of water pressure regulators offered by the **C. A. Norgren Company,** Englewood, Colorado.

These regulators provide accurate pressure control in spite of fluctuations in primary pressure and in rates of water flow. They are designed for large volume flow (gpm) and for quick response to sudden demands for greater volume.

These new, Series 20AP Norgren Regulators are offered in pipe sizes from ¼" through 1". They are available with a choice of three pressure ranges — 0-50 psi, 0-125 psi, 0-250 psi. Each is suitable for line pressures up to 400 psi and temperatures up to 200 F.

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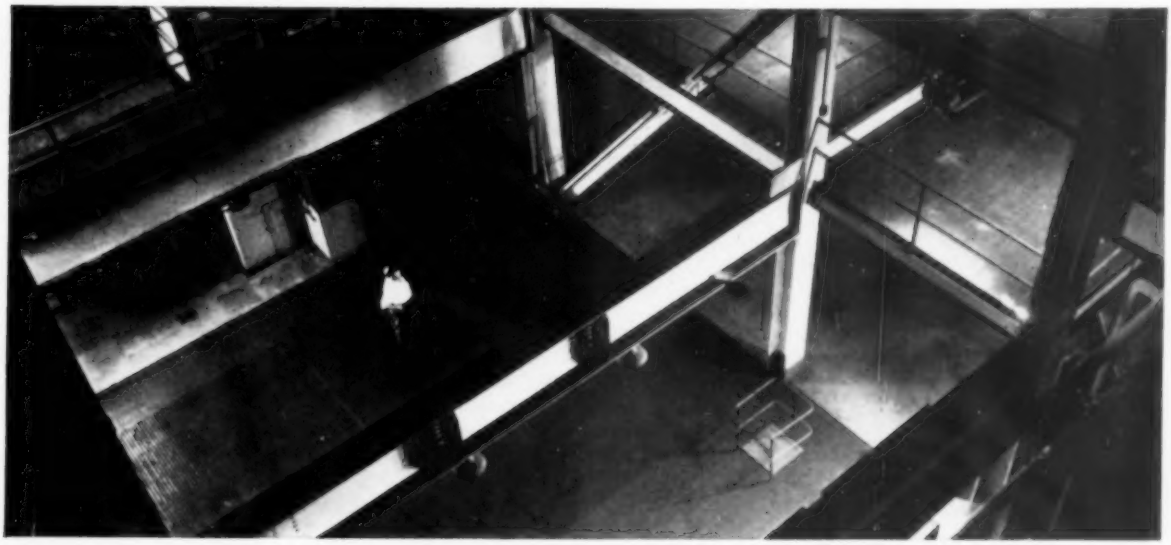
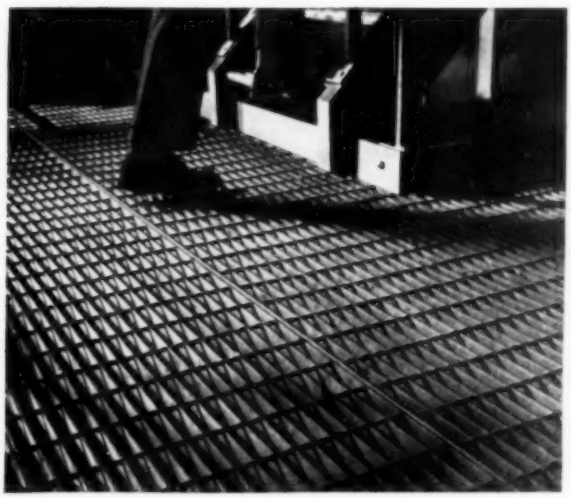
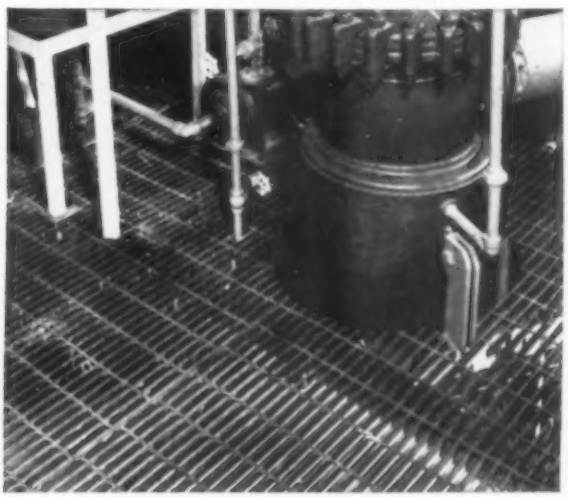
designed for flexibility...Electroforged® for strength
Blaw-Knox Grating fits modern plant needs



More floor space . . . Platforms, mezzanines and loading docks made of flexible Blaw-Knox Electroforged Steel Grating increase storage space, enlarge feeder areas. Easily installed, and easily adapted to changing layouts.



Safer walking . . . on *non-slip* floors, walkways and stairs, Blaw-Knox Electroforged Steel Grating provides rigid one-piece construction and features the twisted cross bar to make every step a safe step.



Fits anywhere . . . around pipes, beams and machinery to provide a neat, easy-to-maintain surface. There's nothing to wear, patch or catch dirt. And Blaw-Knox Grating admits more light and air for ideal working conditions.

Write for Bulletin 2527 and see how Blaw-Knox Grating can be custom fabricated to meet your plant improvement specifications.

BLAW-KNOX

BLAW-KNOX COMPANY

Equipment Division
Department J, Pittsburgh 38, Pennsylvania

New Product Briefs (Continued)

"Floating" Floors

H-6 A new type of raised floor that can take loads of 1000 lb/sq in. or 275 lb/sq ft and that can be laid down directly onto existing floors without requiring a permanent supporting structure, has been developed by **Floating Floors Inc.**, New York City.

New floor is called a Floating Floor because design principles makes it possible to lay, rearrange, or remove the floor with a degree of flexibility impossible in conventional flooring.

The Floating Floor is laid down by assembling 36½" x 36½" modules which rest on adjustable pedestals. Each module contains four cast aluminum plates placed in a steel frame. Whenever changes in space usage necessitate rearranging the floor, the completely interchangeable modules and plates can be raised with a hand suction-cup lifter. With the same lifter the floor can be picked up section by section and moved out for use in any other location.

The floor is merely assembled and requires neither a supporting substructure nor any alteration to existing flooring. Any plant using extensive piping, ductwork, or cables can use the floor to obtain both free access subfloor space and flexible, easily rearranged or moved flooring for machinery and other equipment.

Floors in old and new buildings can be used as pressurized plenum chambers that supply air through registers, eliminating the need for extensive ductwork and large outlets.

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Start-up Strainers

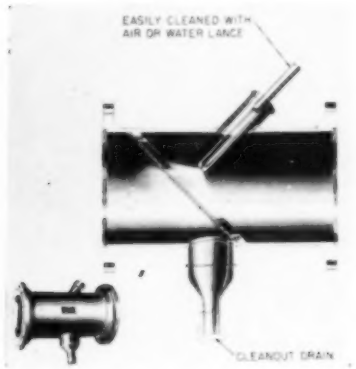
H-7 **Leslie Co.**, 230 Delafield Ave., Lyndhurst, N. J., announces the availability of a line of newly designed, large size start-up strainers to protect boiler feed, condensate and circulating pumps and other equipment installed in new piping construction.

Available in 6" to 16" steel construction with 150 or 300 lb flanges, the new strainers offer maximum protection from dirt, mill scale, and other inevitable debris common to new piping systems.

The "straight-through" pipe construction keeps pressure differential across the strainer to a minimum. The easily removable screen permits the option of leaving the strainer body in the line permanently or, if desirable, removing the

entire strainer for re-use and replacing with a spool piece.

Operating personnel can easily clean the strainer by inserting an air, steam or water lance and flushing trapped debris down the clean-out drain.



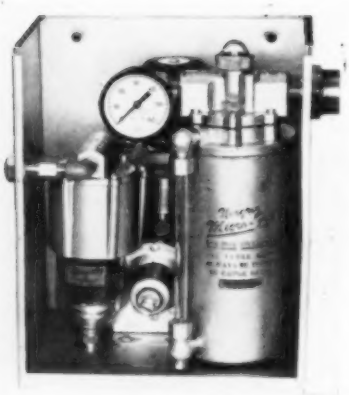
In actual field use, the self-cleaning feature reduces strainer cleaning time from four hours (with basket, cone and disc types) to ten minutes. Upstream and downstream bosses are provided for pressure drop measurement to signal need for cleaning.

Key-Operated Plug

H-8 A new key-operated plug that guards against electrical hazards is announced by **Yale & Towne Mfg. Co.**, Chrysler Bldg., New York 17, N. Y.

Ideal for use in plants and factories where potentially dangerous electrical equipment may be accessible to unskilled personnel who are not authorized to use it, the new Lock-it Plug has a key-operated nylon safety bar which, in its locked, projecting position, prevents entrance of the plug into an outlet. Turn of the key retracts safety bar. Plug retails for about $1.75.

New Product Briefs (Continued)



Lubrication Units

H-9 Totally enclosed in splash-proof cabinets — that can be key-locked to prevent unauthorized personnel from tampering with adjustments — are the new Micro-Fog Lubrication Units manufactured by the **C. A. Norgren Co.**, Englewood, Colorado. Available with one or two quart oil capacity, these compact units offer a choice of 32, 200 or 300 rated bearing inch capacities.

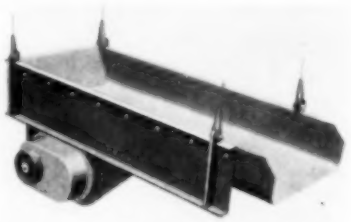
Standard on all models are 1) 25-micron air filter which automatically removes liquids and solids from the air supply and automatically drains collected moisture, 2) solenoid valve which automatically starts and stops lubrication as machine power is turned on and off, 3) pressure regulator to reduce main line air pressure to the desired working pressure and hold it constant, 4) pressure switch to actuate an alarm or shut down machine if air pressure falls, 5) Micro-Fog Lubricator which delivers a controlled amount of air-borne lubrication to all bearings, gears, chains and cams on a machine and which offers visible oil feed and oil supply.

Available as optional equipment for all models is a liquid level control that will actuate an alarm or stop the machine when oil supply needs replenishing.

Vibrating Feeder

H-10 For controlled feeding of a wide range of bulk materials at high rates, **Link-Belt Company**, Prudential Plaza, Chicago 1, Ill., has announced its new Straightline Geared Counterweight Vibrating Feeder.

Capable of absorbing great impacts, the new unit can be mounted directly under a hopper or bin to feed, convey, pick or scalp high tonnages of materials, including lumps up to 36-in. in diameter. A geared eccentric shaft mechanism produces a high intensity straight-line stroke that ranges in amplitude from ¼ to ½ in. up to 900 rpm.



Where the rate of feeding bulk materials has to be controlled and the headroom is limited, this new vibrating feeder provides an ideal solution. It lends itself to a variety of adjustments; speed of vibrator can be changed by adjusting variable speed belt drive; hopper gate can be adjusted to control material depth; horizontal stroke can be adjusted to control material trajectory.

The new feeder can be floor supported or suspended by cables from bins, tanks or hoppers. It can also be equipped with special features such as dust-tight covers, scalping decks, etc.

Complete information is contained in leaflet 2670.

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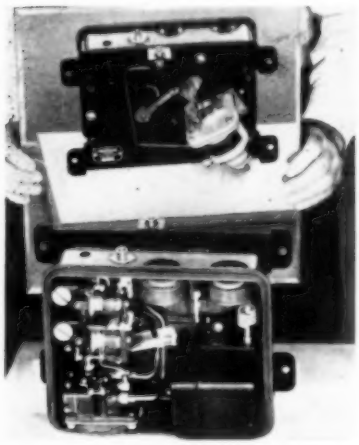
Pneumatic Relay

H-11 A new pneumatic relay which solves equations continuously by combining two or more pneumatic signals in varying, predetermined proportions is now being manufactured by **Bailey Meter Company**, 1050 Ivanhoe Road, Cleveland 10, Ohio.

The new relay multiplies or divides one pneumatic signal representing a measured variable by some

predetermined function of a second variable. Standard unit also adds and subtracts pneumatic signals and provides proportional control action.



Users in process plants will find it well suited to the ratioing of two flows in multi-element control systems, and to pressure-temperature compensation of liquid or gas flow measurement.

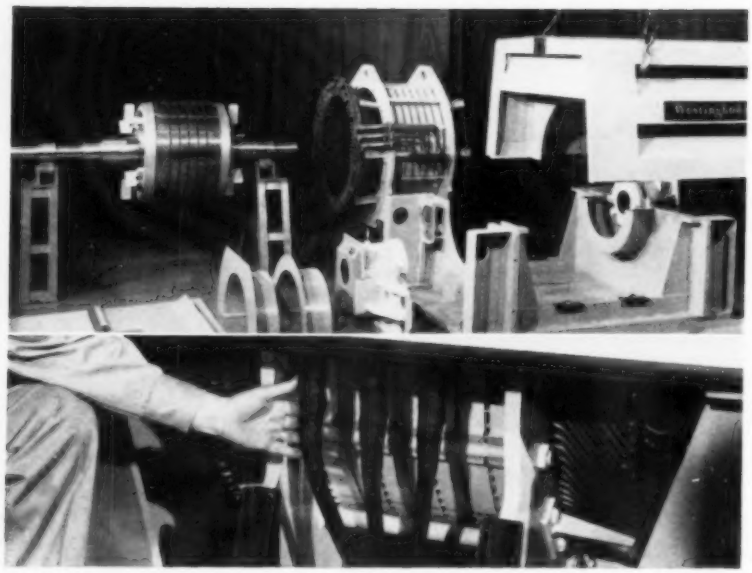
The Bailey Computing Relay uses standard SAMA ranges of 3-15 psig and 3-27 psig. Approximate size: 8½ x 11 x 9 inches deep. Function-generating cam is easily shaped on the job. Product Specification P99-9 gives details.

Screw Conveyor-Feeder

H-12 Flo-Tube, versatile screw conveyor unit of **Canton Stoker Corporation,** 300 Andrew Place, S. W., Canton 1, Ohio, is now available in a new 4" model for moving (without dust or spillage) coal, sand, gravel, salt, sugar, wood chips, chemicals, etc. The new 4" size, with round tubing and belt drive, will give small industrial operations efficient, automatic bulk materials handling systems.

New 4" Flo-Tube will pick up and deliver ½ to ¾ tons of coal per hour. Rate of delivery can be synchorized with the rate of consumption to move bulk materials from storage bins to a collecting hopper or direct to processing equipment.

Each Flo-Tube is engineered according to the length, incline, bulk material handled, and requirements necessary to best resist abrasive and corrosive action. New 4" unit is operated by motors rated from ½ hp to 1½ hp.



Fully Accessible Large A-C Motors

H-13 New motor design, called F/A (fully accessible) by **Westinghouse Electric Corp.**, Box 2278, Pittsburgh, Pa., permits enclosure to be manufactured independent of the wound stator. Enclosure is merely bolted to base of motor making the wound stator fully accessible when required. Previously, enclosure was welded or cast as part of the wound stator.

Full accessibility is apparent in photos. In just 30 minutes, every part of the F/A motor is removed and made available for complete inspection, cleaning and general servicing. In lower photo, side panel has been removed. Note large area available for making connections.

Complete line of squirrel-cage, wound rotor and synchronous motors from 250 to 7000 hp for all horizontal utility and industrial drive applications have been redesigned to use only six basic enclosures and 30 frame sizes as compared to 450 frame sizes formerly used.

Maintenance engineers have to keep apparatus clean and dry — particularly in locations where oil vapor, carbon dust and other conducting material are prevalent. With the new motor design, cleaning and drying are done with ease.

Air-to-Air Heat Exchanger

H-14 A line of small rotary, air-to-air heat exchangers which can take waste gases at temperatures as high as 1000 F has been developed by **The Air Preheater Corporation**, 60 East 42nd St., New York, N. Y.

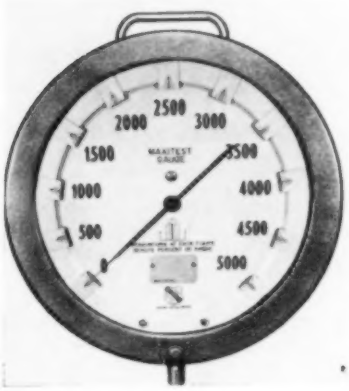
About 20-in. in diameter and 11 in. in overall depth, the new compact rotary regenerative heat exchanger can handle flows of 250 cfm. Larger units up to 4 ft in diameter can handle flows as high as 2600 cfm. Efficiencies of 90% or more can be realized.

Arrangement of multiple units in parallel with common ducting will accommodate flow rates greater than 2600 cfm.

Chief component of the rotary regenerative heat exchanger is the rotor (note photo) with individual sector shaped baskets that contain the heating element. Seals and seal-

New Products (Cont'd)

ing surfaces remain plane and parallel to minimize leakage despite severe axial temperature gradient in the heating elements during operation. Drive for the rotary regenerative is a ¼ hp gearhead motor.



Movable Graduation Tabs in Test Gauge

H-15 **Manning, Maxwell & Moore, Inc.**, 250 East Main St., Stratford, Conn., has announced the addition of a new test gauge to its Ashcroft line of pressure gauges. Known as Type 1080, the Ashcroft "Maxitest" is for testing pressure instruments to 10,000 psi, 0 to 30" vacuum, and 15 psi or 30 psi & 30" vacuum compound. It is available in 8" dial size only.

Its movable dial graduation tabs have replaced graduations printed on the dial and bear graduation markings on both sides of the exact reading mark. Reading 1%, ½%, and ¼%, they indicate deviations from standard reading in terms of per cent of total error. The tabs are positioned on the outer circumference of the dial at major dial graduation points. There are no intermediate dial graduations.

Movable graduation tabs makes the "Maxitest" easy to recalibrate in the field. Each tab can be individually and precisely set against a calibration standard, such as a deadweight tester. The resulting accuracy, at any dial tab reading, will be equal to that of the calibration standard, or 1/10 of 1% when a deadweight tester is used.

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NEW Catalogs & Bulletins

STEAM TURBINES . . . FURNACES BOILERS, STOKERS, BURNERS

2—Water Tube Boilers — Shop-assembled "package" gas-oil or combination fired units described in 8 page brochure. Pressures to 600 psig; 1,000 to 20,000 lb/hr—design features, installations. — VULCAN STEEL TANK CORP.

9—Free Coal Counseling — General information on how Coal Bureau engineers will advise on selection, transportation and utilization of the right coal for your purpose.—NORFOLK AND WESTERN RAILWAY.

12—Steam Turbines — Advances in design of double and triple-flow tandem ratings to 250 mw, and of 3600/3600 rpm and 3600/1800 rpm close-coupled cross-compounded arrangements to 500 mw and larger, described in Catalog 03R8620. — Power Equip. Div., ALLIS-CHALMERS.

13—Power Plant Equipment — 12 page booklet No. 1022-B gives details on combustion and boiler feedwater control, pressure reducing, desuperheating and automatic soot blowing — retractable and rotary. — COPES - VULCAN DIVISION, BLAW-KNOX COMPANY.

16—Small Boiler Performance—4 p Bulletin shows how the packaged Ljungstrom air preheater boosts performance. Boilers as small as 25,000 lb/hr can have advantages of regenerative preheating—saves fuel, boosts output, and permits use of lower grade fuels.—THE AIR PREHEATER CORPORATION.

48—Boiler Tubes — Booklet gives information on care of boiler tubes, causes of chemical attack, etc. Contains charts of weights, working pressures, etc., for boiler tubes and pipe.—BOILER TUBE COMPANY OF AMERICA.

54—Collector System—Catalog gives advantages of Penaflo—reduces tube erosion, separates large particles, collects smaller particles; separates large, high-carbon particles for refiring, and small flyash particles for disposal. — PRAT - DANIEL CORPORATION.

65—Self-Contained Boilers — 8 p brochure AD-162 describes company's line of Model CB boilers. Highlights design features, fuel flexibility, four-pass, forced draft design, unified electric and steam preheater, quiet vibrationless impeller, and hinged doors with built-in refractory.—CLEAVER-BROOKS CO.

86—Steam Generators—68 p Bulletin B-56-5 covers large central station and industrial installations, including reheat and dual circulation for steam generators.—FOSTER WHEELER CORP.

96—Packaged Gas Burner — Non-premixing ring gas burner incorporates flame retention regardless of air velocity. Factory assembled forced draft Series H packaged units for gas, rotary oil or combination described in Series B13 literature. — THE WEBSTER ENGINEERING COMPANY.

FANS—PUMPS—COMPRESSORS HEATERS—HEAT EXCHANGERS

100—Power Plant Pumps — Bulletin covers complete line of standard pumps for all power plant requirements — from 12,000 hp, doublecase boiler feed pump, to condensate, circulating and booster pumping duty. Also, special pumps for nuclear power plant installation. — BYRON JACKSON PUMPS, INC.

118—Rotary Pumps — Catalog 955, 8 pages — Describes and illustrates complete line of Roper Rotary Pump products. Sizes range from ¾ to 600 gpm for pressures up to 1000 psi. Has listing of materials of construction, performance data and dimensions. — ROPER HYDRAULICS, INC.

122—Industrial Fans — Bulletin 702 covers Type XL fans for air and material handling. Volumes to 130,000 cfm pressures to 18" SP. Catalog 855 describes Pressure Fans. Volumes to 12,000 cfm, 10" to 50" SP. — CLARAGE FAN CO.

123 — Slurry Pump — Catalog describes the new SP-90 slurry pump which permits proportion of slurries in the mix tank to remain constant, with pumping rates variable from maximum to 1/5 of maximum.—MANZEL.

135—Heat Exchanger — Bulletin 132 shows how sectional Aero unit gives close temperature control, saves labor, power, and water; design improves heat transfer to outdoor air by evaporation; 7,000,000 to 18,000,000 Btu/hr capacity range. —NIAGARA BLOWER COMPANY.

145—Multi-Stage Pumps — 4 page Catalog B-100 shows design and construction details, and performance curves of two types of pumps used for general water supply, boiler feeding, ice water & brine circulation, sprinkling systems and a wide variety of clear-liquid uses. Heads range over 600 ft, capacities to 320 gpm.—C. H. WHEELER MFG. CO.

146 — Vertical Sump & Process Pumps — 12 page Bulletin 726.2 describes new line of heavy duty

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vertical centrifugal pumps for wet and dry pits to 20 ft. Single and duplex units. Capacities to 1,080 gpm. For regular sump service or wide variety process applications.—GOULDS PUMPS, INC.

187—Gland Bearing Pump — Design & operational features in Bulletin 150; also selection charts and performance data tables.—BLACKMER PUMP COMPANY.

192—Induced Draft Fans — Catalog 905 describes the new Type DN Dynacurve fans offering minimum floor space & height requirements, and high efficiency over wide performance range. — CLARAGE FAN COMPANY.

INSTRUMENTS—METERS CONTROLS—REGULATORS

205 — Draft Gages — Bulletins describe inclined, vertical tube, air filter gages, straight line and dial pointer type, minified draft and receiver type gages, velocity gages and pitot tubes, gas analyzers and steam calorimeters. — ELLISON DRAFT GAGE CO.

221—Boiler Water Level Controls—Catalog describes exclusive magnetic operating principle. Low water cut-offs (single stage); pump controls; low and high water alarms; and water columns. Complete line 0-900 lb wsp. — MAGNETROL INC.

222—Pressure Regulators — Catalog No. 77 illustrates and describes application, operation and specifications for a complete line of reducing, back-pressure and pump-pressure regulators.—MASON-NEILAN.

225—Cooling Controls — Self-powered controls for compressors, stills, solvent coolers, degreasers, small engines, etc., described in Bulletin 710; operational and hook-up sketches.—SARCO COMPANY INC.

228—Fuel Cut-Outs & Water Level Alarms — Brochure D2 — Electrode type equipment for installation on water columns to provide fuel cut-out, high and low water level alarms and pump cut on and off. For pressures to 2500 psi. — RELIANCE GAUGE COLUMN CO.

242—Control Valves—Catalog 1500-B—Illustrated—Describes complete line of Domoter, solenoid-operated and handwheel single seat control valves for handling difficult fluids under extremes of temperature and pressure. Offers full, unrestricted flow, positive plug and seat alignment and direction flow flexibility.—THE ANNIN COMPANY.

244—Desuperheaters — 4 p Bulletin

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1024-A describes steam-assist desuperheating. Charts show the close control of temperature which is possible during wide load fluctuations. Schematic diagrams of piping arrangement and control systems. — COPES-VULCAN DIV.

258—Temperature Regulators—Bulletin 5307A describes temperature regulators that vary the flow of steam or cooling water to heater or process to automatically maintain constant temperature. Includes sizing and capacity data. — LESLIE CO.

269 — Fluid Meters — Product Specification M22-1 illustrates measuring mechanisms, as well as indicating, recording, and integrating variations of meters measuring rate of flow of steam or liquids from 13.5 to 212 in. H_2O maximum differential. — BAILEY METER CO.

PLANT EQUIPMENT—WELDING TOOLS—PROCESS SPECIALTIES

305 — Industrial Heating — Catalog 50, 50 pages — Gives data on the type and size of electric heating units and similar equipment for industrial heating needs. Detailed diagrams and photographs describe applications.—EDWIN L. WIEGAND CO.

319—Portable Band Saw — Bulletin describes the Kalamobile, a portable metal-cutting band saw. Has rubber-tired 12" wheels and telescoping handles. Capacity 6" rounds - 10" flat. — Machine Tool Div., KALAMAZOO TANK AND SILO CO.

323—Mercury Vapor Fixture — Industrial color corrected units described in Bulletin 401. "Stabilux Societ" secures bulb end of lamp, eliminating lamp rupture and breakage from vibration. — WIDE-LITE CORP.

326—Beam-Type Guardrail—Manual FB-3456 describes how Flex-Beam Guardrail protects danger spots along roads, highways, bridges, and in industrial plant locations. Installation photos, drawings, reference data, dimensions and physical properties. — ARMCO DRAINAGE & METAL PRODUCTS, INC.

351—Grating & Treads — Bulletin 2527 describes electroforged, riveted, rectangular, diagonal, "U" and "T" types of interlocked grating and treads. Safe load tables and specification information. — BLAW-KNOX EQUIPMENT DIV.

386—Rigid Frame Buildings—8 page bulletin "Dixisteel Rigid Frame Buildings" — low cost, flexibility of design, durability, and minimum maintenance; also triangular or bow-string truss all-steel roof systems; fabricated for rapid erection. — ATLANTIC STEEL COMPANY.

392—Metal Cutters—Catalogs 718M & 755 describe three heavy duty units for cutting almost anything in metal up to ¾" — rods, wire, chain, etc. — H. K. PORTER, INC.

PIPING, VALVES, FITTINGS STEAM SPECIALTIES, TRAPS

406—Blow-Off Valves — Catalog B-434 describes the valve to use for boilers to 2500 psi. Disc has welded-in stellite facing and inlet nozzle has integral welded-in heavy stellite

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seat. — YARNALL-WARING COMPANY.

409—Lubricated Plug Valves—Catalog PV-4 covers operational features. Quarter-turn to open or close; lubricant grooves provide positive seal when valve is closed; when open, seating surfaces not exposed. —THE WM. POWELL COMPANY.

421—Air and Gas Traps — 8 page Bulletin No. 289 describes complete line of ball float traps for draining water from air, gas or steam lines or draining a light liquid from a gas under pressure (for pressures to 900 lb). Includes: installation, selection and ordering information. — ARMSTRONG MACHINE WORKS.

437—Piping for Permanence—Bulletin covers a variety of services where wrought iron pipe saves because it serves longer. Corrosion costs you more than wrought iron. — A. M. BYERS COMPANY.

446—Valve Performance Facts — 32 case histories covering valve installations throughout industry. — CRANE CO.

452—Pipe and Tubes—42 page Bulletin 26 gives types of steel tubes, tensile, creep and rupture properties, welding and forming data, applications and other valuable data.—National Tube Div., UNITED STATES STEEL CORP.

471—Pipe — Catalog 575C lists specifications for all sizes of pipe from ⅛ in. to 24 in. in diameter. Tables give data and description, wall thickness and weight. Also describes company's pipe fabrication facilities for structural uses.—L. B. FOSTER CO.

492—Pressure Reducing Valve—Bulletin D-92 shows how valve will minimize problems inherent in steam service. One pilot with three interchangeable springs provides range of from 2 to 150 psi.—FISHER GOVERNOR COMPANY.

493—Unions & Valves — Complete company line of pipe unions and check valves covered in Catalog 56. New Four-Star lug nut unions & spring controlled check valves included. — CATAWISSA VALVE & FITTINGS COMPANY.

MAINTENANCE PACKING GASKETS, LUBRICATION

509—Rust Solvent — Data sheet describes "Liquid Wrench" a penetrating rust solvent that loosens rusted bolts, nuts, screws and "frozen" parts. Safe for all metals and alloys. — RADIATOR SPECIALTY CO.

511—Maintenance Ideas—"Genius at Work" — Contains ideas about plant maintenance, bits of philosophy, new products and a description of the company's line. — KANO LABORATORIES.

523—Boiler Gaskets — Catalog describes wire-inserted woven asbestos and spiral wound metal-asbestos — for manholes, handholes and tube caps of all makes of stationary and marine boilers, water walls, economizers, etc. — THE BELMONT PACKING & RUBBER CO.

527—Wear-Free Packings — File No. DMSP describes complete line of metallic and semi-metallic packings. — DURAMETALLIC CORPORATION.

566 — Tube Expanding — Bulletin 55 on torque control describes automatic air driven tube expander drive. Control assures uniformity of tube expanding. — THOMAS C. WILSON, INC.

570 — Multi-Purpose Grease — Bulletins describe new single product Gulfcrown grease (4 consistencies) that does the work of many — simplifies application and avoids errors, reduces inventory and cuts lubrication costs; grease gun or centralized system application. — GULF OIL CORPORATION.

ENGINES, DRIVES POWER TRANSMISSION MATERIALS HANDLING

601 — Crane Runway Rails — Catalog gives information on crane rails, angle bars, crane stops, rail clips, hook and anchor bolts, bearing plates. Also specifications on various sizes of crane rail clips and explains how to order rails. — L. B. FOSTER CO.

604 — Motor Units — Catalog 51 describes motor units for accurate performance and longer, lower cost life for operation of valves, floorstands and sluice gates. — CHAPMAN VALVE MANUFACTURING CO.

619—Automatic Coal Scales — Bulletin O352A covers Model H-39 (capacities up to 40 tons/hr) automatic coal scales. Coal never arches in feeder or weighing hopper — dust sealed; contact platework of stainless steel. — RICHARDSON SCALE COMPANY.

623—Overhead Handling Equipment — 8 page catalog pictures and describes overhead handling equip-

Bulletins (Con'd)

ment. Includes all basic standard equipment used in 90% of all Monorail installations. — THE AMERICAN MONORAIL CO.

624—Freight Elevators—Booklet A-414 describes the new Plunger Electric Freight Elevator designed for low-rise, light and heavy duty freight handling requirements. — OTIS ELEVATOR COMPANY.

661—D-C Crane Control — 8 p Bulletin GEA-6434 features precision hoist, bridge and trolley control systems. — GENERAL ELECTRIC CO.

669—Universal Joints — Bulletin 820 describes joints with ¼" to 2" bores; ½" to 4" hub diameters; 340 to 130,700 in.-lbs static torque; and ½ to 2-7 hp (100 rpm). — LOVEJOY FLEXIBLE COUPLING CO.

WATER TREATMENT, HEATING VENTILATING, AIR CONDITIONING REFRIGERATION, DUST & FUME CONTROL

700—Water Conditioners — 4 p brochure describes Anco water conditioners for hot-water and humidifying systems. Stop rust and corrosion; prevent discolored water. —ANDERSON CHEMICAL COMPANY, INC.

703 — Air Conditioning — Bulletin 122 describes and illustrates operation and suggests applications for air conditioning method that controls humidity to 1% rh and temperature to 1 F (up to 140 F) with accuracy, independent of moisture sensitive instruments. — NIAGARA BLOWER CO.

713—Electric Precipitators—26 page Bulletin 104 shows how units meet five engineering requirements —Positive control of gas flow; high, uniform electrode emission; effective continuous cycle rapping; and safe, trouble-free high voltage equipment. Gives 9 time-tested steps to a successful installation. — BUELL ENGINEERING COMPANY.

718—Zeolite Softeners — 20 p catalog 4520 describes the sodium zeolite softening process in detail. Contains data required for proposals, lists factors important in selection of proper zeolite material and in sizing of equipment. Single valve controls all cycles of service and regeneration. — COCHRANE CORPORATION.

722—Packaged De-Ionizers — Bulletin PK describes complete line of de-ionizers, which produce chemically pure water at flow rates up to 1000 gph. Standardized units, shipped from factory fully-assembled, eliminating complicated installation problems, and virtually eliminating service problems. Recommended for laboratory and plant production uses. — ILLINOIS WATER TREATMENT COMPANY.

731—Film Type Exchangers—Bulletin HE-7 describes typical installations. Units can be cleaned while in operation. Serve as jacket water coolers, feedwater heaters, sulphuric acid coolers, etc., and can be designed to cool or heat any liquid and to condense or evaporate any fluid. — HENRY VOGT MACHINE CO.

733 — De-Ionization — Reprint on "Counterflow Regeneration" a new method of ion-exchange, which combines chemical advantage of upflow with proven mechanical advantage of downflow. — ILLINOIS WATER TREATMENT COMPANY.

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745—Dust & Fume Control — 40 p booklet gives helpful information on recovering dusts, fly ash, mists, fumes and other suspensions of gases. Summarizes important points design and plant engineers should know about electrical precipitators.—WESTERN PRECIPITATION CORPORATION.

774—Refrigerating Units — Bulletin 97-F illustrates and describes low-pressure refrigerating units. — FRICK CO.

ELECTRICAL

801—Motors—Bulletin describes and catalogs more popular a-c motors from 1 to 600 hp, for every process and manufacturing requirement. Single phase and polyphase; surpass NEMA specifications. — BROOK MOTOR COMPANY.

802—Small Relays—Simple solenoid design with only one moving part described in Bulletin 700. Silver alloy contacts need no cleaning, filing, or other maintenance. — ALLEN-BRADLEY CO.

804 — Electronic Ground Alert — Portable & stationary units detect line-to-ground faults immediately. Available for 220, 440, 2,300 & 4,160 volt ungrounded systems. Form 255 gives details. — DELTA ENGINEERING SALES CO.

805—Power Factor Correction — 24 page catalog 50B shows how you can cut power costs by installing correction capacitors on motors and other inductive electrical equipment. Greater loads can be handled from existing circuits. Wiring, transformer and switchgear costs can be greatly minimized in new installations.—SPRAGUE ELECTRIC CO.

841—Applying Electric Heat — "101 Ways to Apply Electric Heat"—Gives illustrated case histories showing experience-tested methods of applying Chromalox electric heating elements. Physical aspects of installation are shown along with the description of the problem, solution and advantages obtained.—EDWIN L. WIEGAND CO.

874—High-Voltage Cable — Bulletin EB-27 gives full details on performance of Type AB insulation in 15 Industry Specification Tests, including operating temperature. — ANACONDA WIRE & CABLE COMPANY.

879—Commutator Maintenance — 27 page booklet B-6150-A contains information on brush and commutator maintenance. Includes maintenance requirements, factors affecting commutation and carbon brush materials. — WESTINGHOUSE ELECTRIC CORP.

889—Transformers — Open dry-type units, rated 300 kva and above, 15 kv and below to meet general industrial requirements described in Bulletin GEA-6668. Three types of high-voltage terminations. — GENERAL ELECTRIC.

OPERATING AIDS SUPPLIES & MISCL.

906—Steel Measuring Tapes — Complete catalog describes full line of measuring tapes from 6 to 100 ft, including wide blade tape with upright measurements. — EVANS RULE CO.

911—Rescue Kit — Bulletin 733 describes unit and procedure for freeing persons trapped in cars, buildings, under machines, in elevators, etc. — H. K. PORTER INC.

912—Visual Control — 24 page Booklet BH-10 describes how the Boardmaster Visual Control can help you get things done better and faster. Ideal for production, traffic, inventory, scheduling, sales, etc. Full price is $49.50 with cards. — GRAPHIC SYSTEMS.

Huge Steel Island to Support Sulphur Processing Plant — La.

Seven miles off the coast of Louisiana the world's first offshore sulphur mining plant is beginning to take shape. When completed, the Y-shaped island will stretch nearly one mile and reach 60 ft above the water. Structure is the principal part of a $30 million project undertaken by **Freeport Sulphur Company** to develop a major new sulphur deposit known as Grand Isle.

The positioning of templates, or frameworks, which form the base of the supporting towers, is being handled by a 250-ton capacity revolving crane mounted on a barge the size of a football field. Despite the choppy four-foot swells, the first 120-ton template, serving as the central reference point for all the subsequent erection, was lowered in the 50-foot deep water to within three inches of the selected location.

Once a template is in place, 237-foot steel piles are sunk down through the hollow legs. The piles are then welded to the template legs and atop this framework is placed a deck section.

Five large and ten smaller steel-pile towers, connected by 200-foot-long bridge spans, will form the structure. This will support the complex and heavy facilities required by the Frasch process whereby sulphur is melted in the underground formation by superheated water and brought to the surface in molten form.

The large towers will support the major installations — the seawater heating plant, three drilling platforms, and the living quarters and recreational area. A total of 250 men will work five-day-on, five-day-off shifts and will be transported to and from the island by company helicopters.

Largest of the installations is the heating plant, shops and warehouse unit. The plant will use 13,000,000 cubic feet of gas to heat 5,000,000 gallons of seawater a day to 325 degrees Fahrenheit for injection into the underground formation through wells. It will also compress large volumes of air used to air-lift the liquid sulphur to the surface, and produce electric power to operate drilling rigs and other equipment.

The plant will use a patented process, developed by Freeport, which makes it possible to heat the required vast quantities of seawater with a minimum of corrosion and scaling.

Two drilling platform units will be at the ends of the Y arms. In addition to the derricks from which directional wells will be drilled, facilities will be installed to collect and measure the sulphur coming from the deposit 2,000 feet below. The third drilling platform will be some distance from the main island.

Discovered by Humble Oil & Refining Company during offshore oil exploration, the Grand Isle deposit ranks among the most important sulphur discoveries of recent years. The mine, expected to be in production in 1960, will be one of the largest sulphur mining operations in the world.

THE FIRST big steel structure (172 ton deck section) of the $30 million Freeport Sulphur Company offshore sulphur mine is placed by a giant floating crane atop legs sunk deep into the Gulf floor. Note how structure dwarfs workmen.

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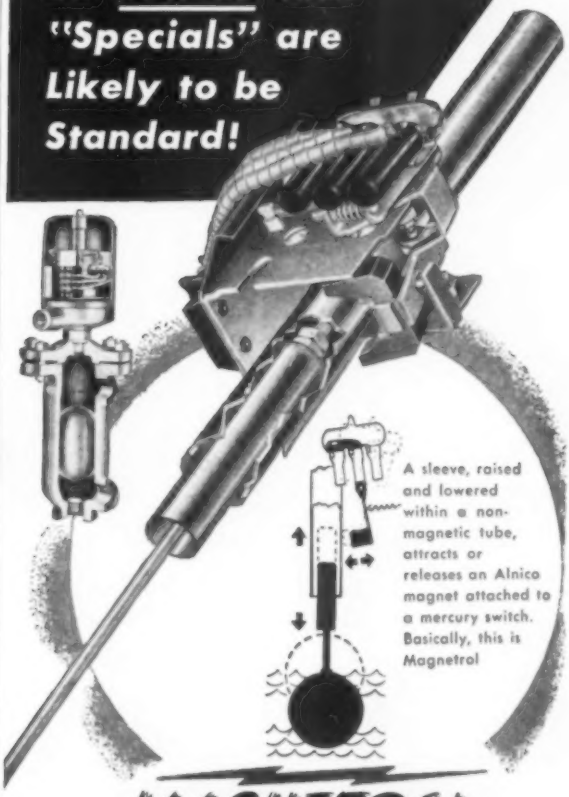

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FUTURE EVENTS of Engineering Interest

Aug. 7-9: North Carolina Hospital Engineers Association, Inc., Annual Convention, Sir Walter Hotel, Raleigh, N. C. Henry W. Miller, Pres., NCHEA, Oteen, N. C.

Aug. 20-22: Hydraulics Conference, American Society of Civil Engineers, Atlanta Biltmore Hotel, Atlanta, Ga. Pub. Rel. Dept., ASCE, 33 West 39th St., New York 18, N. Y.

Sept. 15-17: American Institute of Electrical Engineers, Petroleum Industry Conference, Baker Hotel, Dallas, Tex.

Sept. 15-17: Process Industries Conference, American Society of Mechanical Engineers, Statler Hotel, Buffalo, New York.

Sept. 18-21: 40th Annual Meeting, Public Utilities Association of the Virginias, Greenbrier Hotel, White Sulphur Springs, W. Va. R. W. McKinnon, Exec. Secy., PUAV, 602 First Federal Bldg., Roanoke, Va.

Sept. 28-Oct. 1: Power Conference, American Society of Mechanical Engineers, Statler Hotel, Boston, Mass.

Sept. 29-Oct. 3: American Society of Tool Engineers, Semi-Annual Meeting & Western Tool Show, Shrine Exposition Hall, Los Angeles, Calif.

Oct. 6-10: Southern Textile Exposition; Textile Hall Corp.; Textile Hall, Greenville, S. C. H. H. Lesesne, 434 Palmetto State Life Bldg., Columbia 1, S. C.

Oct. 9-10: 21st Annual Joint Solid Fuels Conference, ASME-AIME, Hotel Chamberlin, Old Point Comfort, Va. Carl S. Dennis., Chm., Va. Section, ASME, The Chesapeake & Ohio Railroad Co., Richmond, Va.

Oct. 13-15: National Electronics Conference, 14th Annual Forum on Electronic Research, Development, and Application, Hotel Sherman, Chicago, Ill. R. E. Hornacek, Pub. Committee Chairman, NEC, c/o Ill. Bell Telephone Co., 208 West Washington St., Chicago 6, Ill.

Oct. 14-16: 13th Annual Exposition, Society of Industrial Packaging & Materials Handling Engineers, Coliseum & Morrison Hotel, Chicago, Ill. G. Cornwall Spencer, 327 S. LaSalle St., Chicago 4, Ill.

Oct. 20-21: Southeastern Electric Exchange, Engineering & Operation Section, Hotel Roanoke, Roanoke, Va.

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Oct. 20-24: South Central Region Annual Conference & Exhibition. National Association of Corrosion Engineers, Roosevelt Hotel, New Orleans.

Oct. 23-25: Mid-America Minerals Conference. American Institute of Mining, Metallurgical, and Petroleum Engineers, Chase & Park Plaza Hotels, St. Louis, Mo. Society of Mining Engineers of AIME, 29 West 39th St., New York 18, N. Y.

Nov. 4-8: 39th Annual National Metal Exposition & Congress. American Society for Metals, International Amphitheatre, Chicago, Ill. ASM, 7301 Euclid Ave., Cleveland 3, Ohio.

Dec. 1-3: Semi-Annual Meeting. American Society of Refrigerating Engineers, Hotel Roosevelt, New Orleans, La.

Dec. 1-5: 23rd National Exposition of Power & Mechanical Engineering. American Society of Mechanical Engineers, New York Coliseum, New York, N. Y. E. K. Stevens, Pres., International Exposition Co., 480 Lexington Ave., New York 17, N. Y.

Books for the Plant Engineer

Procedure Handbook of Arc Welding Design & Practice

Published by **The Lincoln Electric Co.**, Cleveland 17, Ohio; 1,300 pages; Price, $10.00.

Book explains and discusses the newest in equipment and how new understandings of the welding process have created new concepts in machine requirements and performance. The trend to submerged arc welding is reflected in an enlarged section on this process. This Eleventh Edition devotes much time to design and production data for making welded machinery and welded structures.

Heat and Thermodynamics

By **Mark W. Zemansky**, Prof. of Physics, The City College of New York; Published by **McGraw-Hill Book Co., Inc.**, 330 West 42nd St., New York 36, N. Y.; 484 pages; Price, $7.50.

This book gives a clear presentation of heat and thermodynamics, covering the fundamental ideas of temperature, work, internal energy, heat, reversibility, and entropy, with examples and applications mostly to ideal gases. Physical, chemical and engineering applications are considered in great detail.

Nuclear Engineering

Edited by **Charles F. Bonilla**, Prof. of Chemical Engineering; Published by **McGraw-Hill Book Co., Inc.**, 330 West 42nd St., New York 36, N. Y.; 341 pages; Price, $12.50.

Written by twelve experts in various fields of engineering and science, this reference work gives the basic principles of the main engineering disciplines involved in the design of nuclear reactor cores and power plants.

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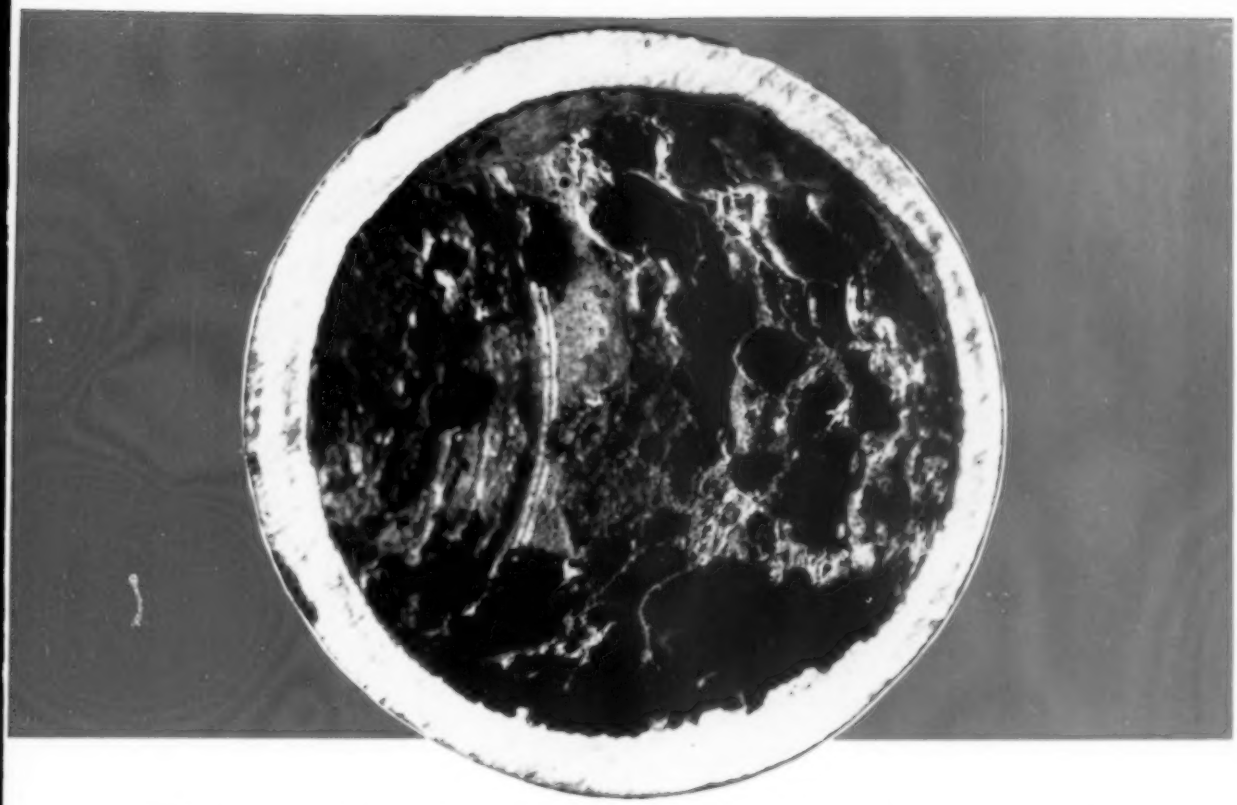

Ever look a corroded pipe in the eye?

If you have, you probably thought the pipe was squinting because is was partially closed. Rust, corrosion and scale can ultimately reduce the capacity of pipes to a point of complete breakdown of your system. Of more immediate concern, rust and scale, acting as insulators, will reduce heat transfer to a minimum in your refrigeration and air conditioning systems. Efficiency is lowered, operating cost rises.

ANCO SCALE REMOVER readily attacks tough deposits of rust and scale converting them to forms which are easily rinsed away. **ANCO** SCALE REMOVER — an efficient dry formula based on DuPont Sulfamic Acid — can be added directly to the operating system. In a few hours the removal of rust and scale has been accomplished and the pipes of your system are clean.

A clean system deserves the best in preventive maintenance. Maintain top operating efficiency by the regular use of **ANCO** COOLEX, a maintenance product for the prevention of rust, corrosion and scale.

Use **ANCO** ALGAECIDE in convenient briquette form for the removal and prevention of slime and algae in refrigeration and air conditioning systems.

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- Corrugating plant increased output of double-wall board 61%!
- Recovery plant eliminated the need for one of its two boilers!
- Chemical plant increased drying speed of drum dryer 44% with no wet spots, while increasing boiler capacity and saving $200 a month on fuel!

The Cochrane C-B System assures fast, uniform heat transfer. Condensate can be returned to boiler or make-up system at process temperature, resulting in higher efficiency, increased production and lower steam costs.

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